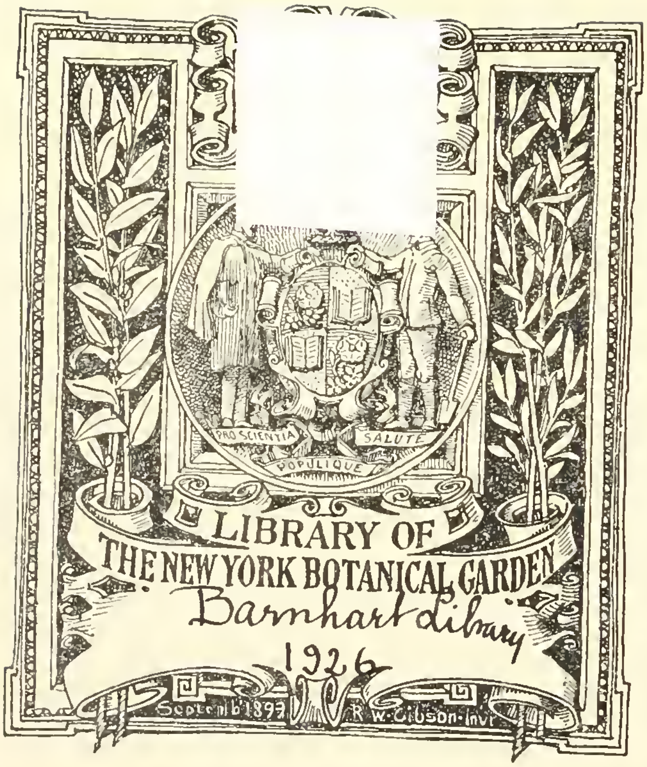
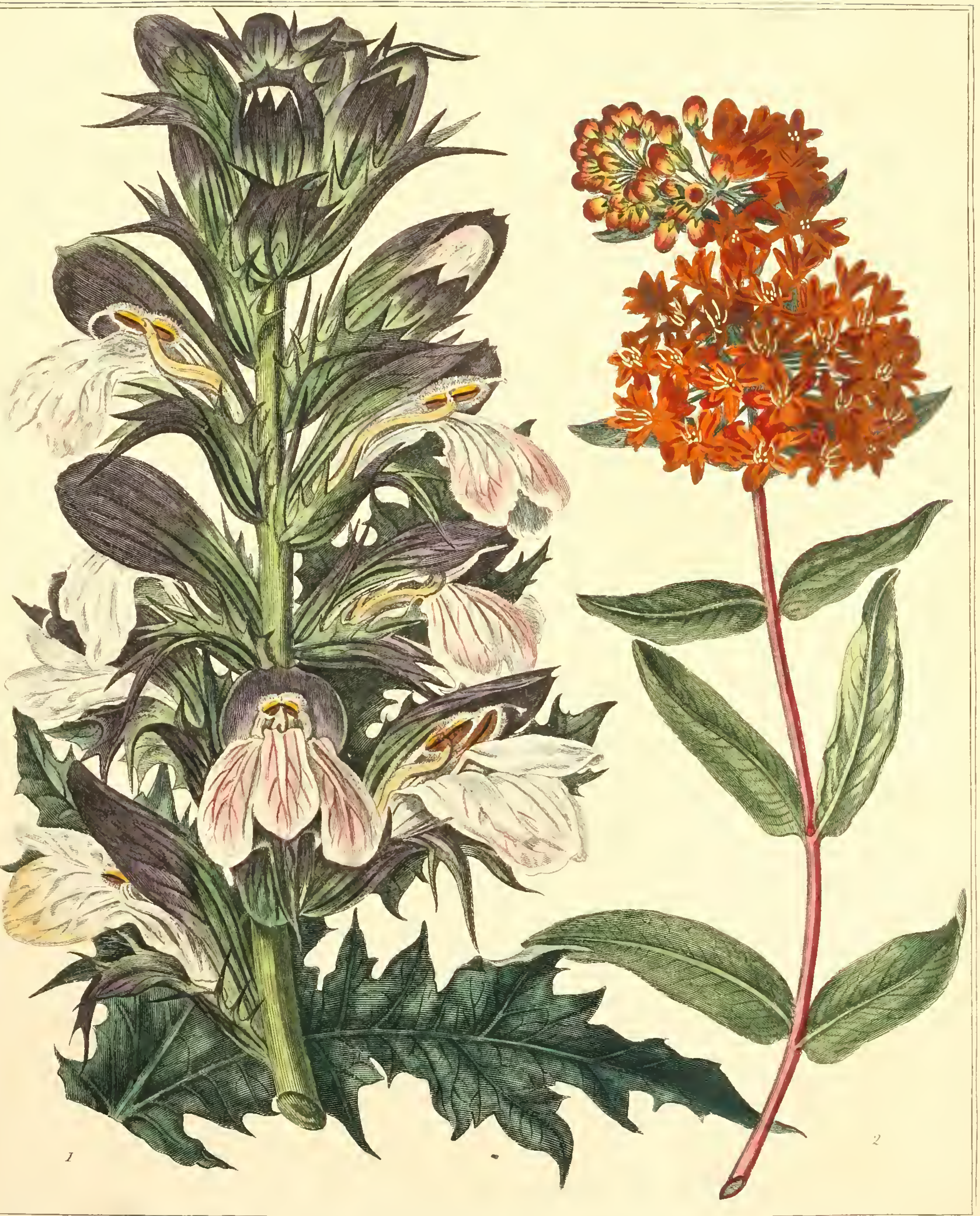


LIBRARY OF
THE NEW YORK BOTANICAL GARDEN
Barnhart Library
1926



Painted by Syd Edwards London Publiſhed Mar 1 1806 by G Kearsley Fleet Street Engraved by F Sanſom

1 *Acanthus mollis.*
Smooth Bears Breech.

2 *Asclepias tuberosa.*
Orange Apocynum

THE NEW
BOTANIC GARDEN,

ILLUSTRATED WITH

One Hundred and Thirty-three Plants,

ENGRAVED BY SANSOM,

FROM THE

ORIGINAL PICTURES,

AND

COLOURED WITH THE GREATEST EXACTNESS

FROM

DRAWINGS BY SYDENHAM EDWARDS.

LIBRARY
NEW YORK
BOTANICAL
GARDEN

LONDON:
PRINTED FOR JOHN STOCKDALE, PICCADILLY,
BY T. BENSLEY, BOLT-COURT, FLEET-STREET.
1812.

CONTENTS.

Plate.			Page.
1	*Acanthus Mollis*	Smooth Bear's Breech	1
	Asclepias Tuberosa	Orange Apocynum	4
2	*Agrostemma Coronaria*	Rose Campion	11
	Anchusa Officinalis	Officinal Bugloss	13
	Aquilegia Canadensis	Canadian Columbine	15
	Actæa Racemosa	American Herb Christopher	18
3	*Agapanthus Umbellatus*	African Agapanthus	21
	Asphodelus Luteus	Yellow Asphodel	23
4	*Anemone Hortensis*	Star Anemone	26
	Albuca Minor	Lesser Albuca	37
5	*Arbutus Unedo*	Strawberry Tree	41
	Alyssum Saxatila	Yellow Alyssum	45
6	*Anthericum Liliastrum*	Savoy Anthericum	50
	Amaryllis Formossima	Jacobean Amaryllis	54
7	*Aster Amellus*	Italian Aster	66
	Amaranthus Hypochondriacus	Prince's Feather	72
8	*Apocynum Androsæmifolium*	Fly-Catching Dog's-Bane	79
	Antirrhinum Purpureum	Purple Toad-Flax	82
9	*Argemone Mexicana*	Mexican Argemone	89
	Azalia Nudiflora Coccinea	Scarlet Azalia	90
10	*Bignonia Radicans*	Ash-Leaved Trumpet Flower	93
	Butomus Umbellatus	Flowering Rush	97
11	*Bupleurum Fruticosum*	Shrubby Hare's-Ear	99
	Bulbocodium Vernum	Spring Bulbocodium	101
	Blitum Capitatum	Berry-Headed Strawberry-Blite	102
12	*Calla Ethiopica*	Æthiopian Calla	105
	Coronilla Emeris	Scorpion Senna	106
13	*Calycanthus Floridus*	Carolina Allspice	110
	Colutea Arborescens	Common Bladder Senna	111
	Ceanothus Americanus	New Jersey Tea-Tree	113
14	*Campanula Rapunculoides*	Nettle-Leaved Campanula	117
	Crepis Barbata	Yellow Hawkweed	123
	Convolvulus Tricolor	Small Blue Convovulus	124

CONTENTS.

Plate.			Page.
15	*Chelone Obliqua*	Red-flowered Chelone	128
	Colchicum Autumnale	Autumnal Crocus	130
	Catananche Cærulea	Blue Catananche	132
16	*Convallaria Majalis*	Lily of the Valley	134
	Cerinthe Major	Great Honey-Wort	136
17	*Chelidonium Glaucum*	Yellow-Horned Poppy	138
	Cistus Ladaniferus	Gum Cistus	139
18	*Crassula Coccinea*	Scarlet-flowered Crassula	144
	Cytisus Laburnum	Laburnum	146
19	*Cyclamen Persicum*	Persian Cyclamen	149
	Crocus Vernus	Spring Crocus	152
*19	*Dahlia Pinnata*	Purple Dahlia	156
	Dahlia Crocata	Yellow Dahlia	*ib.*
20	*Daphne Cneorum*	Trailing Daphne	160
	Dracocephalum Virginianum	Virginian Dragon's Head	163
21	*Delphinium Elatum*	Larkspur	167
	Dianthus Barbatus	Sweet William	169
22	*Dodecatheon Meadia*	Mead's Dodecatheon	185
	Dictamnus Albus	White Fraxinella	186
23	*Echinops Sphærocephalus*	Great Globe Thistle	189
	Eryngium Alpinum	Alpine Eryngo	190
24	*Erica Grandiflora*	Great-flowered Heath	194
	Epilobium Angustifolium	Rose-Bay Willow-Herb	202
25	*Fritillaria Imperialis*	Crown Imperial	204
	Fumaria Cava	Hollow-Rooted Fumitory	207
26	*Gentiana Acaulis*	Large-flowered Gentian	209
	Glycine Rubicunda	Dingy-flowed Glycine	212
27	*Helleborus Viridis*	Green Hellebore	215
	Hypericum Hircinum	Fetid St. John's Wort	218
28	*Hemerocallis Fulva*	Town Lily	221
	Hibiscus Syriacus	Althea Frutex	223
29	*Ixia Chinensis*	Chinese Ixia	227
	Iberis Gibraltarica	Gibraltar Candy Tuft	232
30	*Iris Germanica*	German Iris	235
	Iris Versicolor	Various-coloured Iris	*ib.*
	Iris Variegata	Variegated Iris	*ib.*
31	*Kalmia Glauca*	Glaucous Kalmia	245
	Linum Arboreum	Tree Flax	247
32	*Helianthus Multiflorus*	Perennial Sun-flower	252
	Hedysarum Obscurum	Creeping-Rooted Hedysarum	255
33	*Lavatera Trimestris*	Annual Lavatera	258
	Lathyrus Sativus	Blue-flowered Lathyrus	263
34	*Lychnis Chalcedonica*	Scarlet Lychnis	266
	Leucojum Vernum	Spring Snow-Flake	271
	Lysimachia Nummularia	Creeping Moneywort	274

CONTENTS.

Plat.			Page
35	*Lobela Cardinalis*	Scarlet Lobelia, or Cardinal's flower	276
	Lilium Candidum	White Lily	279
36	*Mirabilis Jalapa*	Marvel of Peru	288
	Mimosa Sensitiva	Sensitive Plant	292
	Monarda Didyma	Scarlet Monarda	303
37	*Nigella Damascena*	Love in a Mist. Devil in a Bush	306
	Narcissus Jonquilla	Jonquil	309
38	*Nelumbium Speciosum*	Chinese Water-Lily	317
	Nolana Prostrata	Trailing Nolana	*ib.*
39	*Oenothera Fruticosa*	Shrubbery Oenothera	319
	Organum Dictamnus	Dittany of Crete	323
40	*Primula Veris*	Oxlip	327
	Pæonia Tenuifolia	Fine-leaved Pæony	342
41	*Pancratium Maritimum*	Sea Pancratium	347
	Soldanella Alpina	Alpine Soldanella	350
42	*Papaver Orientale*	Eastern Poppy	352
	Pulmonaria Virginica	Virginian Lung-Wort	355
43	*Philadelphus Coronarius*	Common Philadelphus	358
	Passiflora Cærulea	Common Passion flower	360
44	*Philadelphus Coronarius*	Syringa, or Mock Orange	370
	Polemonium Cæruleum	Blue Greek Valerian	372
45	*Phlox Paniculata*	Panicled Lychnidea	374
	Polygala Chamæbuxus	Box-leaved Milkwort	378
	Physalis Alkekengi	Winter Cherry	380
46	*Rudbeckia Purpurea*	Purple Rudbeckia	385
	Rosa Lutea	Single yellow Rose	388
47	*Rhododendron Ponticum*	Pontic Rhododendron	402
	Robinia Hispida	Rose Acacia	405
48	*Symphytum Orientale*	Eastern Comfrey	410
	Salvia Indica	Indian Sage	412
49	*Sanguinaria Canadensis*	Canada Puccoon	420
	Saxifraga Crassifolia	Oval-leaved Saxifrage	421
50	*Syringa Vulgaris*	Lilac	427
	Sarracena Flava	Yellow Sarracena	429
51	*Scabiosa Atropurpurea*	Sweet Scabious	432
	Scilla Campanulata	Bell-flowered Squill	437
52	*Sedum Anacampseros*	Evergreen Orpine	440
	Sophora Tetraptera	Wing-Podded Sophora	446
53	*Sempervivum Arachnoideum*	Cobweb Houseleek	450
	Strelitzia Reginæ	Canna-leaved Strelitzia	453
54	*Solidago Stricta*	Willow-leaved Golden Rod	455
	Senecio Elegans	Double Purple Groundsel	460
	Spartium Junceum	Spanish Broom	462

CONTENTS.

Plate.			Page.
55	*Spiræa Lobata*	Lobe-leaved Meadow Sweet	466
	Sisyrinchium Iridioides	Iris-leaved Sisyrinchium	471
56	*Tradescantia virginica*	Virginian Spiderwort	474
	Trillium Sessile	Sessile Trillium	475
	Thalictrum Aquilegifolium	Feathered Columbine	476
57	*Tropæolum Majus*	Greater Nasturtium	479
58	*Valerian Rubra*	Red Valerian	481
	Veronica Sibirica	Siberian Speedwell	485
59	*Vinca Rosea*	Madagascar Periwinkle	489
	Viburnum Tinus	Laurustinus	492
60	*Wachendorfia Paniculata*	Panicled Wachendorfia	498
	Viter Negundo	Five-leaved Chaste Tree	500

TO THE BINDER.

Plate I to face the Title-page to Vol. I.
Plate LIII to face the Title-page to Vol. II.

RY
ORK
CAL
GARDEN

PLATE 1.

1. ACANTHUS MOLLIS.

SMOOTH BEAR'S BREECH.

THIS genus comprehends several hardy herbaceous plants of the perennial flowering kind, which are in use for the purpose of ornament in pleasure-grounds, &c. and also one of the evergreen shrubby sort for the stove.

It is of the class and order *Didynamia Angiospermia*, and ranks in the natural order of *Personatæ*.

The characters are: that the calyx is a perianthium, with leaflets in three alternate pairs, unequal, and permanent: the corolla single-petalled and unequal, having a short tube closed with a beard: no upper lip; very large under lip, which is flat, straight, very broad, three-lobed, obtuse, and of the length of the upper lip of the calyx: the stamina have four filaments, subulate, shorter than the corolla, the two upper rather longer, recurved and incurved at the top: the antheræ are oblong, compressed, obtuse, the lateral ones parallel, and villous before: the pistillum has a conical germ, a filiform style of the length of the stamina, and two acute lateral stigmas: the pericarpium is a subovate pointed capsule, two-celled and two-valved, with a contrary partition, alternate claws, curved and fastened to the partition: the seed is ovate, gibbous and single, but sometimes double.

The species most commonly cultivated are: 1. *A. mollis*, Smooth Acanthus; 2. *A. spinosus*, Prickly Acanthus; 3. *A. ilicifolius*, Holly-leaved Shrubby Acanthus.

The first, or Smooth Acanthus, according to Miller, has the stem from two to three feet in height. The leaves are oblong, smooth on

JAN 19 1926

both sides and shining, from a span to a foot in length, divided deeply into opposite ovate lobes, which are bluntly toothed and finely ciliate about the edges, placed on roundish petioles, with a flat channel running along the upper surface. Both the leaves and flower stems rise directly from the root: the former, by spreading closely upon the ground in circular clusters, produce a good effect. But though the leaves are said to be smooth, they are not without white bristles on both sides, especially along the nerves. The flowers are white, and come out from about the middle to the top of the stalk. They make their appearance in July or August, continuing in blow a month or six weeks, and then produce seed.

There is a variety of this plant in which the leaves are larger and less sinuated, the upper side shining.

The second sort, or Prickly Acanthus, has the leaves deeply jagged in very regular order; each segment is terminated by a sharp spine, as are also the petioles and the calyx of the flowers, so that the plant is troublesome to handle. In both these species the leaves and stalks are annual.

The Holly-leaved Acanthus is an evergreen shrub, which rises about four feet in height, dividing into many branches; the leaves being similar to those of the common holly both in size and shape, and also armed with spines in the same manner. The flowers come out singly in an upright raceme at the end of the stalk, are white, and shaped like those of the Common Acanthus, but smaller.

The two first are thick, fleshy, fibrous-rooted plants, which spread considerably, and penetrate the earth to a great depth. They are found in their native state in Spain, Italy, and Portugal; but grow without difficulty in the open ground in this climate.

The last is a very tender plant, which in this climate requires the constant heat of the stove to preserve it. It is a native of South America, and also of both the East and West Indies. It is retained in hot-houses for the purpose of variety.

Culture.—Both the Smooth and Prickly Acanthus are found to succeed in any common soil without much attention to the nature of the exposure, and are said by Miller to be lasting plants, which may be propagated either by seeds or the parting of the roots. If by the former method, the seed should be sown in a light dry soil towards the end of March, either in slight drills or on the plain surface, and immediately raked in. When the season proves favourable, the plants appear in May, and all the after-culture they require is to keep them clean from weeds, and, where they stand too close, to thin them out, so as to leave them about six inches apart; which is room sufficient for them to grow in until the autumn, when they should be transplanted into situations where they are designed to remain. The first, as being the most tender, is advised to be planted in a warm border near a wall, and which, as the plants do not multiply so fast by their roots, do not require more room than about three feet; but the second, as it spreads its roots to a great distance, should have more than twice that space. From this last sort being hardy, it may be proper to be planted between shrubs to fill up vacant spaces; where it will grow without difficulty, provided the ground be light and not over wet; and when in flower will thus make an agreeable variety.

When they are propagated by their roots, the operation may be performed either in spring or autumn: but the former should only be removed in the spring; for, if transplanted in the autumn, and the following winter should prove cold, it will run the hazard of being destroyed. The roots in these cases should not be parted too small, and the plants be at once placed out where they are to remain. As these plants take very deep root, when planted in wet ground, the roots are liable to rot in the winter. They have frequently been traced more than four feet: they should not therefore be wholly removed after they have been growing long in a place; but the side shoots be annually taken off, otherwise they will be apt to spread so far as to overpower the neighbouring plants or shrubs. The remaining culture is only that of affording the flowering stems due support when it becomes requisite, and carefully clearing away the decayed stalks in the autumn.

When these plants are once established in a piece of ground, they are observed by Miller to be eradicated with great difficulty.

Both the Smooth and Prickly Acanthus are mostly kept in the nurseries for the purpose of sale.

The Shrubby species of Acanthus may be propagated with the greatest certainty by sowing seed that has been procured from abroad, in pots; to be plunged in a bark-bed in the stove until the plants are raised, when they are to be managed in the same manner as other hot-house plants. Layers and cuttings likewise sometimes succeed, when planted in pots and placed in the same situations.

2. ASCLEPIAS TUBEROSA.

ORANGE APOCYNUM.

This genus comprises various plants of the flowery, perennial, herbaceous, and shrubby exotic sorts; and of the Swallow-wort and Dog's-bane kinds.

It belongs to the class and order *Pentandria Digynia*, and ranks in the natural order of *Contortæ*.

The characters of which are: that the calyx is a five-cleft, sharp, very small, permanent perianthium. The corolla monopetalous, flat or reflex, five-parted: the divisions ovate-acuminate, slightly bending with the sun. The nectaries five, growing to the tube of the filaments below the anthers, fleshy, or cowled; protruding from the bottom a sharp horn, bending inwards. The stamina consist of five filaments collected into a tube, swelling at the base: the anthers oblong, upright, and two-celled, terminated by an inflex membrane lying on the stigma, having a reversed wing on each side, growing broader downwards with its edge contiguous to the next. The pollen is collected into ten corpuscles, inversely lanceolate, flat, hanging down into the cells of the anther by short threads, frequently flexuose; which are annexed by pairs to five cartilaginous, twin tubercles, each placed on the tip of the wings of the anthers, adhering to the angles of the stigma, between the anthers. The pistillum consists of two oblong acuminate germs; styles two, subulate: stigma common to both, large, thick, five-cornered, covered at top by the apexes of the anthers, umbilicate in the middle. The pericarpium has two follicles, large, oblong, acuminate, swelling, one-celled, one-valved. The seeds numerous, imbricate, crowned with down: the receptacle is membranaceous and free.

The species are very numerous, but those most commonly in cultivation are; 1. *A. vincetoxicum*, Common Swallow-wort, or Tame-poison; 2. *A. nigra*, Black Swallow-wort; 3. *A. Syriaca*, Syrian Swallow-wort, or Dog's-bane; 4. *A. purpurasceus*, Purple Virginian Swallow-wort, or Dog's-bane; 5. *A. verticillata*, Verticillate Swallow-wort; 6. *A. decumbens*, Decumbent Swallow-wort, or Dog's-bane; 7. *A. tuberosa*, Tuberous-rooted Swallow-wort, or Dog's-bane; 8. *A variegata*, Variegated Swallow-wort; 9. *A. arborescens*, Arborescent Swallow-wort; 10. *A. fruticosa*, Shrubby or Willow-leaved Swallow-wort; 11. *A. undulata*, Wave leaved Swallow-wort; 12. *A. crispa*, Curled-leaved Swallow-wort; 13. *A. curassavica*, Curassoa Swallow-wort, or Bastard Ipecacuanha; 14. *A. volubilis*, Twining Swallow-wort; 15. *A. gigantia*, Curled flowered Gigantic Swallow-wort.

The first species has the root very large and much branched: it is composed of many strong fibres, which are connected at the top, like those of Asparagus. From this arise many stems, in number proportioned to the size of the root, near two feet high, very slender at the top, woody, round, hairy, and not branched. The leaves are cordate-ovate. acuminate, smooth, hardish, quite entire, glaucous-green, the midrib and sometimes the edge of the leaves a little hairy: the petioles short. Peduncles axillary, many-flowered, resembling proliferous umbels. The calyx small, green, divided at the end into five bristles. The corolla is commonly white: the follicles ovate-acuminate: the seeds small, brown, and wrapped in white cotton. It flowers in June, sometimes in May, and continues flowering to August, and is a native of most parts of the continent of Europe.

It is said to vary, with yellow flowers; and there is a variety with broader leaves.

The second species agrees with the above in the shape of its roots, leaves, and flowers; but the stalks extend to a greater length, and toward their upper part twist round any sticks or other plants near them; and the flowers are black.

It is by no means so common as the foregoing, having been found only in the south of France, the mountains about Nice, and in Spain. It flowers at the same time with the other.

The third creeps greatly at the root, and sends up strong stems upwards of four feet high; towards the top of them the flowers come out on the side; these are of a worn-out purple colour, smelling sweet; and sometimes they are succeeded here by large oval pods. It flowers in July, and is a native of North America. The French in Canada eat the tender shoots in spring as Asparagus. The flowers are highly odoriferous.

The fourth species has many stems, as thick as the little finger, at bottom quadrangular with blunted angles, and of a brownish green colour; above round and green, a little hairy. The leaves are on short petioles, from four to six inches long, and two or three broad; the midrib purple. The flowers have the petals of a dusky herbaceous colour, the horns of the nectaries pale and gaping, not erect but horizontal. It is a native of North America, and flowers from July to September.

The fifth species rises with slender upright stalks, at the top of which grow umbels of small white flowers, appearing in July, but never succeeded by pods in this climate. The leaves are frequently four together. The peduncles forming an umbel are opposite to the leaves. It is a native of North America.

The sixth has declining stalks, which are hairy, and eighteen inches in length. The leaves are narrow. The umbels grow at the extremity of the branches,are compact, and the flowers of a bright orange colour. It is a native of North America.

In the seventh species the stems are a foot high, hairy, round, and dusky red. The leaves alternate, except on the upper part of the stem. Below where it branches are generally two leaves, and at the place of branching four: on the branches themselves the leaves are again alternate. The flowers are of a bright orange colour. The tuberous roots very large. It is a native of North America, and flowers from the end of July to September, sometimes ripening seed in this climate.

The eighth, according to Linnæus, is allied to the third; but Dillenius thinks that it approaches very near to the Amœna, but that the stems are shorter, and commonly variegated with dusky purple spots; the leaves broader and rounder, more excavated, less rigid, not shining or hoary underneath, with the oblique veins deeper, so as to be even grooved; the flowers larger, pale, dusky flesh-coloured, sweet-smelling, the horns of the nectaries standing out and gaping more.

According to Miller, it resembles the fourth sort, but the leaves are rough, and the umbels of flowers more compact; they come out on the side of the stalk, are of an herbaceous colour, and are not succeeded by pods in this climate. It is a native of North America.

In the ninth species the stem is shrubby, rough with hairs, upright, as thick as the finger. The leaves opposite, on very short petioles, ending rather obtusely, but with a minute point, and smooth. The peduncles from the summit of the stem, umbelled, villose. The corollas are white. It is a native of the Cape of Good Hope, and flowers in December.

In the tenth the nectaries are compressed without a claw, instead of which are two long reflex ears. The follicles are inflated, and set with soft prickles. It is also a native of the Cape, and flowers from June to September.

The eleventh is a native of the Cape of Good Hope, and flowers here in July.

The twelfth has the stem pubescent, branching at bottom. The leaves subsessile, repand. One umbel of yellow flowers terminates the stem. Found at the Cape of Good Hope.

The thirteenth species has the stem from a foot to two or three feet in height, upright, simple, or generally so, round, pubescent, and milky. The leaves opposite and decussated, petioled, acute, entire, and smooth on both sides. The flowers in umbels: umbellules terminating, or opposite to the terminating leaflet in pairs, peduncled. Involucre none, but only a few subulate leaflets. The peduncle the length of the leaves: pedicels shorter, one-flowered. Calyx of five, lanceolate, reflex leaflets: corolla reflex. Nectaries five, round the middle corpuscle, ovate, ear-cowled obliquely inwards, with a little horn from the nectareous base, sabre-shaped, bent inwards. In the middle is a truncate corpuscle, hollowed at the tip, bluntly five-cornered, covered with five scales at the sides, and gaping with as many chinks. Scales hollowed within. Glands five, roundish, black, to which are fixed above, within the scales, pairs of glanduliferous pedicels, in place of anthers; these glands are oblong, pellucid, panduriform, and filled with prolific moisture. Germs two, ovate, acuminate; styles two, subulate, hid within the column; stigmas simple, and obtuse. Follicles oblong, acuminate, toothless, ventricose, and smooth. It is a native of South America, the West-Indian Islands, and China near Canton, and flowers from June to September.

The fourteenth species is quite smooth, with shining branches. The leaves petioled, ovate-subcordate, and veined. The umbels quite simple, on peduncles the length of the petiole. The flowers greenish. It is a native of Malabar, Ceylon, &c.

The fifteenth rises to six or seven feet in height. The leaves are thick; the flowers white; the pods very large; the base of the petiole bearded above. The nectaries do not put forth awl-shaped horns, but solid converging plates. It flowers from July to September.

Culture.—The method of propagating the different hardy kinds, as the first eight species, is by parting the roots and planting them out, either in the autumn as soon as the stems decay, or in the early spring months before the new shoots are protruded. They require a rather dry soil, as when there is too much moisture they are apt to have their roots destroyed by it in the winter season. They are likewise capable of being raised from seed, when it can be procured, by sowing it in beds or pots of light fresh earth in the spring months. With the seventh and eighth species, the pots should be plunged in a hot-bed, and as soon as the plants present themselves they should be exposed gradually to the influence of the open air to strengthen their growth, and when sufficiently vigorous, be either pricked out on warm borders, or in the situations where they are to remain. In the former method they must be transplanted the March following into the places where they are to grow. In either mode occasional shade and water must be provided, and in the winter the roots be protected from the action of the frost by being covered with old tan, litter, or mats. These two sorts may also be occasionally increased by planting the offsets in the early spring.

They last many years when proper care is taken of them in the winter; but do not bear frequent removing well, or flower so strongly under such circumstances.

In the culture of the ninth and three following sorts the protection of a green-house is essentially necessary in the winter season.

The ninth and tenth kinds may be increased either by seeds or cuttings. In the first manner the seed should be sown in small pots filled with a light earthy compost, placing them in a hot-bed; and when the plants have attained a proper degree of size and strength they must be pricked out into separate pots, a due degree of shade and water being given till they have stricken fresh root, and afterwards as occasion may require.

The eleventh, twelfth, and other Cape sorts, may be propagated by sowing the seeds in the latter end of March or beginning of April on a moderate hot-bed, covered with light mould, under glasses, or even sometimes in the open air; and when the plants are become sufficiently strong and a few inches in height, they may be placed out into separate small pots filled with light fresh earth, being at first properly shaded and supplied with moisture: after being fully rooted they may be exposed in warm situations in assemblage with other exotic plants till the beginning of the autumn, when they must receive the shelter of the green-house.

The principal attention which is afterwards necessary with plants of this description is, that of properly potting them as they increase in size, and carefully exposing them in the open air during the summer months.

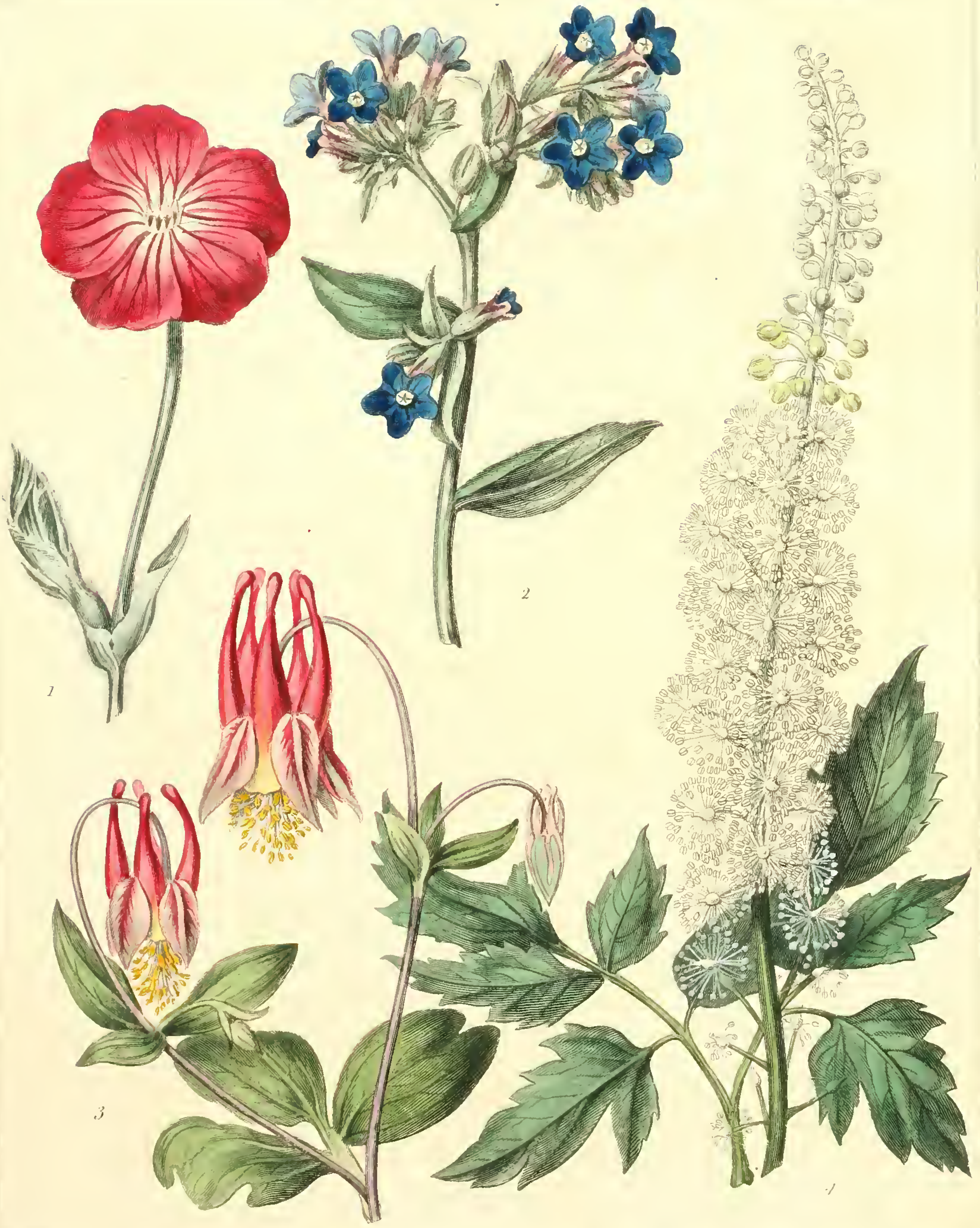
These sorts are likewise capable of being raised by setting the cuttings of the shoots in the latter end of the summer in shady situations, and after they have stricken good roots carefully removing them into pots, to be managed as the seedling plants.

The thirteenth and following kinds require to be kept constantly in the stove of the hot-house. They may be increased by sowing the seeds in the spring either on a hot-bed, or in pots, and plunging them into the hot-bed; the plants, when sufficiently grown, being in the first mode transplanted into separate pots of good earth, to be, as in the latter method, plunged into the tan-bed in the stove of the hot-house. Plants of the thirteenth species should be annually raised, as they decline in the production of flowers after the first year.

The first kinds may be employed in the fronts of the clumps and borders of pleasure, or other grounds, where they have a good effect in mixture with other plants of similar growth.

The second sorts afford an agreeable diversity in the green-house during the winter, and in the compartments about the house in the summer season.

Those of the last description present a pleasing variety among other stove plants.



Painted by Syd Edwards London Published June 1805 by G. Kearsley.

1 *Agrostemma coronaria*
Rose campion

2 *Anchusa officinalis*
Officinal Bugloſs

3 *Aquilegia canadensis*
Canadian Columbine

4 *Actæa racemosa*
American Herb Christopher

PLATE II.

1. AGROSTEMMA CORONARIA.

ROSE CAMPION.

The plants of this genus are of the hardy herbaceous, annual, and biennial-perennial kinds.

It belongs to the class and order of *Decandria Pentagynia*, and ranks in the natural order of *Caryophyllei*.

The characters are: that the calyx is a one-leafed, coriaceous, or leather-like, tubulous, five-toothed, permanent perianthium: the corolla has five petals, with claws of the length of the tube of the calyx; and border spreading, obtuse, and undivided: the stamina are ten awl-shaped filaments, five alternately later than the other five, inserted into each claw of the petals: the antheræ simple: the pistillum is an ovate germ, with filiform, erect styles, of the length of the stamina, and simple stigmas: the pericarpium an oblong-ovate, covered, one-celled, five-valved capsule: the seeds are very numerous, kidney-shaped, and dotted: the receptacles free, as many as seeds; the interior ones gradually longer.

There are a number of different species, but those for cultivation as ornamental plants are, 1. *A. coronaria*, Rose Campion: 2. *A. Flos Jovis*, Umbellate Rose Campion.

The first of these species, in its natural state, has the corolla white, with the middle red; and it has the habit of the species below, but is harder, more pulpy, and more tomentose. The calyxes are much harder, callous, and covered with a white pile, with hard thick ribs, not green hairy lines as in that: the petals are much broader, slightly emarginate: the auricles bifid: the flowers not heaped into an umbel, but scattered on the branches of the stem on very long peduncles. Native of Italy and the Valais.

There are three varieties of this plant: one with deep red, another with flesh-coloured, and a third with white flowers: and the Double Rose Campion, with a large crimson flower, which is chiefly cultivated as being an elegant and beautiful flower.

In the second, the stem is erect, dichotomous at the top, and covered with a white nap. The leaves are conjugate, connate, ovate-lanceolate, quite entire, erect, and pressed to the stem, being all over nappy. The flowers from the top and forks, solitary. The flower-stem rises near a foot or a foot and a half high, and the flowers grow in umbels on the top of the stalk, and are of a bright red colour. It flowers in July, and the seeds ripen in September. It is a native of the mountains of Switzerland.

Culture.—In cultivating these plants all the single kinds may be easily propagated by the seeds, which may be sown either in the spring or autumn on a bed of common earth; and after the plants have attained the height of about three inches, they should be pricked out into another bed, at the distance of six or seven inches from each other, water being immediately applied in not too large a quantity, and afterwards occasionally repeated. In the autumn or spring following the plants will be in a proper situation to be transplanted into the places where they are to remain for the purpose of flowering in the ensuing summer months. And as the plants frequently come up from the self-sown seeds with equal strength and vigour, these may be transplanted in the same manner, and often succeed fully as well.

As the double sorts afford no seed, they can only be propagated by parting the roots; which, as they mostly afford abundance of offsets, may be easily effected. This should be performed in the autumn, as soon as the flowering is over, every head being parted that can be slipped off with roots. These should then be planted out in fresh ground that has not lately received any manure, at the distance of six or seven inches from each other; water being applied in a sparing manner until they have taken fresh root, after which it must be wholly omitted, as much moisture is very prejudicial. In the spring they should be put into the situations where they are to remain for flowering.

A few plants may likewise be placed in pots of good fresh mould, in order to be set out in the yards or other compartments about the house.

The second sort admits of the same methods of cultivation, but succeeds best in a rather moist soil, where the situation is somewhat shady.

Both the species and all varieties are well suited for the purposes of ornament, affording a very agreeable diversity in clumps and borders.

2. ANCHUSA OFFICINALIS.

OFFICINAL BUGLOSS.

This genus comprises several plants, chiefly of the herbaceous perennial tribe, of hardy growth, and of the Bugloss kind.

It belongs to the class and order *Pentandria Monogynia*, and ranks in the natural order of *Asperifoliæ*.

The characters of which are: that the calyx is a five-parted, oblong, round, acute, and permanent perianthium: the corolla is monopetalous and funnel-shaped: tube cylindrical, of the length of the calyx; limb semiquinquefid, form erect, expanding, and obtuse; throat closed with five small scales; convex, prominent, oblong, and converging: the stamina have very short filaments in the throat of the corolla: anthers oblong, incumbent, and covered: the pistillum has four germs: the style filiform, of the length of the stamina; stigma obtuse and emarginate; no pericarpium, but the calyx enlarged and erect, contains the seeds in its bosom: the seeds are four, oblongish, obtuse, and gibbose.

The species that are most deserving of cultivation are: 1. *A.*

officinalis, Garden Alkanet, or Bugloss; 2. *A. undulata*, Waved Alkanet; 3. *A. Virginica*, Virginian Yellow Alkanet; 4. *A. sempervirens*, Evergreen Alkanet.

The first has the stems from a foot to eighteen inches in height and more, the thickness of a finger, slightly angular, hairy and rough. The leaves slightly decurrent, seven inches long, above an inch broad, hairy and rough. The spikes conjugate, terminating the stem; the flowers sessile, in a double row: the calyx hirsute: the corollas purple, near half an inch in diameter. At first opening they are red, but afterwards become purple. Sometimes they are white. It flowers in June, July, and August; and the seeds ripen in a month. It is a native of Italy, Spain, &c.

There are several varieties of it; as, Common Bugloss with blue flowers, with white flowers, with red flowers.

The second species is in height three feet, with many strong lateral branches, produced from the main stem near the ground. The leaves stiff and rough, six or seven inches long, and about half an inch broad at the top, closely embracing the branches at the base, where they are two inches broad; indented and waved on their edges; the upper surface beset with hairs, and very rough to the touch. The spikes of flowers axillary, a foot or more in length, and reflex. The corollas fine blue. It is a native of Spain, &c.

The third seldom rises a foot in height where the soil is good; and where it is poor not more than half that height. Its flowers grow in loose spikes upon a smooth stalk. It is perennial, flowers early, and is a native of North America.

The fourth species has the stems at the sides of the crown of the root, hispid. The leaves ovate, marked with lines, petiolate, and remote. The peduncles axillary; with two bractes, opposite, sessile, lanceolate-ovate, many-flowered: the corollas blue, with a short tube, rather salver-shaped than funnel-shaped: the calyx thick set with long, white, bristly hairs: the segments rather longer than the tube of the corolla: the germs imbedded in a hollow, glandular receptacle, one or two generally abortive: the seeds rough, of a bony hardness. It is found native in Spain and Italy.

Culture.—All the sorts may be propagated by the roots, care being taken to plant them on such soils as are pretty dry. They are likewise capable of being raised by sowing the seeds in the autumnal season upon beds of sandy earth, and in the following spring removing the plants that are sufficiently strong, and setting them out in beds two feet apart, water being occasionally given. They also all come up well from the self-sown seed. They may be made use of for the purpose of ornament, where a great variety of easy cultivated plants are wanted, though they possess but little beauty.

3. AQUILEGIA CANADENISIS.

CANADIAN COLUMBINE.

This genus contains plants of the hardy herbaceous perennial flowering tribe, and Columbine kind.

It belongs to the class and order *Polyandria Pentagynia*, and ranks in the natural order of *Multisiliquæ.*

The characters of which are: that there is no calyx: the corolla consists of five lanceolate-ovate, flat, equal-spreading petals: the nectaries five, equal, alternate with the petals; each horned, and gradually broader upwards, with an oblique mouth ascending outwardly, and annexed inwardly to the receptacle, produced below into a long attenuated tube with an obtuse top. The stamina consist of numerous filaments, subulate; the outer ones shorter, and oblong erect antheræ the height of the nectaries: the pistillum consists of five ovate, oblong germs; ending in subulate styles longer than the stamina, and erect simple stigmas; the chaffs ten, wrinkled, short, separate, and involving the germs: the pericarpium consists of five erect, distinct, cylindrical capsules, gaping from top inward, containing numerous ovate, shining seeds, annexed to the gaping suture.

The species are: 1. *A. vulgaris*, Common Columbine; 2. *A. alpina*, Mountain Columbine; 3. *A. canadensis*, Canadian Dwarf Columbine.

In the first the stem is three feet high, erect, branching, leafy, and somewhat angular. The leaves smooth, glaucous underneath; the lower ones petiolate, biternate; the leaflets roundish, trilobate, gashed and notched; the upper ones digitate, the lobes oval and quite entire: the radical petioles very long. The flowers are produced from the tops of the naked branches, and hang down; they have generally six pistils and eight nectaries. It is a native of most parts of Europe, and perennial, flowering in June.

There are several varieties, the flowers varying greatly by culture, becoming double either by multiplying the petals or the nectaries. And of all these varieties, there are subordinate variations, both in the degree of doubleness, as with two or more rows of petals, two or three rows of nectaries, curiously inserted one into the other; and in the colours, as blue, white, red, purple, flesh-coloured, ash-coloured, chesnut-coloured, and striped or variegated blue and purple, blue and white, red and white, &c.

The second species has the root biennial. The leaves biternate, tender, and smaller than in the common sort; the leaflets multifid: the lobes sublinear and blunt; with the appearance and tenderness of the Canadian Columbine. It is a native of the Alps, &c. and flowers in May and June.

The third has likewise a perennial root. The stems are very slender, and reddish. The leaves in the lower ones biternate, irregularly divided, the extreme lobes blunt, the upper ones simply ternate, toothed or quite entire; the uppermost simple, lanceolate, and acuminate. The corollas yellow within, and red on the outside. It is a native of Virginia, &c. and flowers in April.

Culture.—The culture in these plants may be effected, either by sowing the seeds, or parting the old roots; but the first is the best practice, as the old roots are apt to decline and degenerate after they have blown a few seasons. The seed may be put in either in the autumn or spring season; but the former is the better, as seed which has remained long out of the ground seldom grows well. A bed of fresh light earth is the best for the purpose. In the following spring the plants should be kept clear from weeds, and occasionally watered when the season is dry; being transplanted into other beds of the same sort, during the summer or autumn, according to their growth, at the distance of eight or ten inches every way; water being given when necessary. The plants mostly blow in the following summer, but seldom in a strong manner. The best flowering roots should therefore be taken up in the autumn, and planted out in such situations in the garden and pleasure-grounds as they are designed to remain in. In order to prevent the roots from degenerating by the reception of the farina of other flowers, the flower-stems should be cut down immediately after they have blown. And to keep up a proper succession of fine flowers, some plants should be raised every two years from seed.

In saving the seed of the variegated kinds, great care should be taken that no plain flowers be left among them.

The different varieties of these plants are capable of being increased by parting the roots of the young plants, such as those of three years old, in the autumn or spring.

The only general culture these plants require, is that of keeping them free from weeds, and cutting the decayed stems down in the autumnal season.

The last species often flowers sooner by a month than those of the other kinds.

All the varieties of the first, however much they may seem to differ in form, colour, size, structure, and variegation, are capable of being produced from seed of the same plant.

They are all adapted to afford variety in pleasure grounds and gardens; and the Canada sort is esteemed for the early appearance of its flowers.

4. ACTÆA RACEMOSA.

AMERICAN HERB CHRISTOPHER.

This genus comprehends plants of the Herb Christopher or Baneberry kind, which are hardy herbaceous perennials, of tall growth.

It belongs to the class and order *Polyandria Monogynia*, and ranks in the natural order of *Multisiliquæ*.

The characters are: that the calyx is a perianthium of four leaves, with roundish, obtuse, concave, and caducous leaflets: the corolla has four petals, acuminate at both ends, longer than the calyx, and caducous: the stamina consist of numerous, usually about thirty, papillary filaments, broader at top: the antheræ are roundish, twin, and erect: the pistillum has a superior ovate germen, no style, and a thickish, obliquely-depressed stigma: the pericarpium is an oval-globose, smooth, one-furrowed, and one-celled berry; and the seeds are many, semi-orbicular, and lying over each other in two rows.

The species that chiefly deserve notice for the purpose of cultivation are: 1. *A. spicata*, Common-spiked, Black-berried Herb Christopher; 2. *A. racemosa*, Clustered, Long-spiked, American Herb Christopher.

The first sort grows two feet and a half high, the footstalks of the leaves rising from the root: these divide into three smaller footstalks, each of which divides again into three, and these have each three lobes, so that each leaf is composed of twenty-seven lobes or small leaves. And the flower-stem which rises from the root has leaves of the same form, but smaller. On the top of the stalk appear the flowers, which grow in ramose spikes, and are of a pure white; these come out in May, and are succeeded by black shining berries about the size of peas, which ripen in autumn.

There is a variety of this plant with white berries, and another in which they are of a red colour.

The second kind has large compound leaves, which rise immediately from the root, and are branched after the same manner with the first. The flower-stems frequently rise to the height of four or five feet or more. The flowers are white, in a long spike, reflex at the top. It flowers in June, or the beginning of July, but does not perfect seed in this climate. It is a native of North America, where it is often distinguished by the title of Black Snake-root.

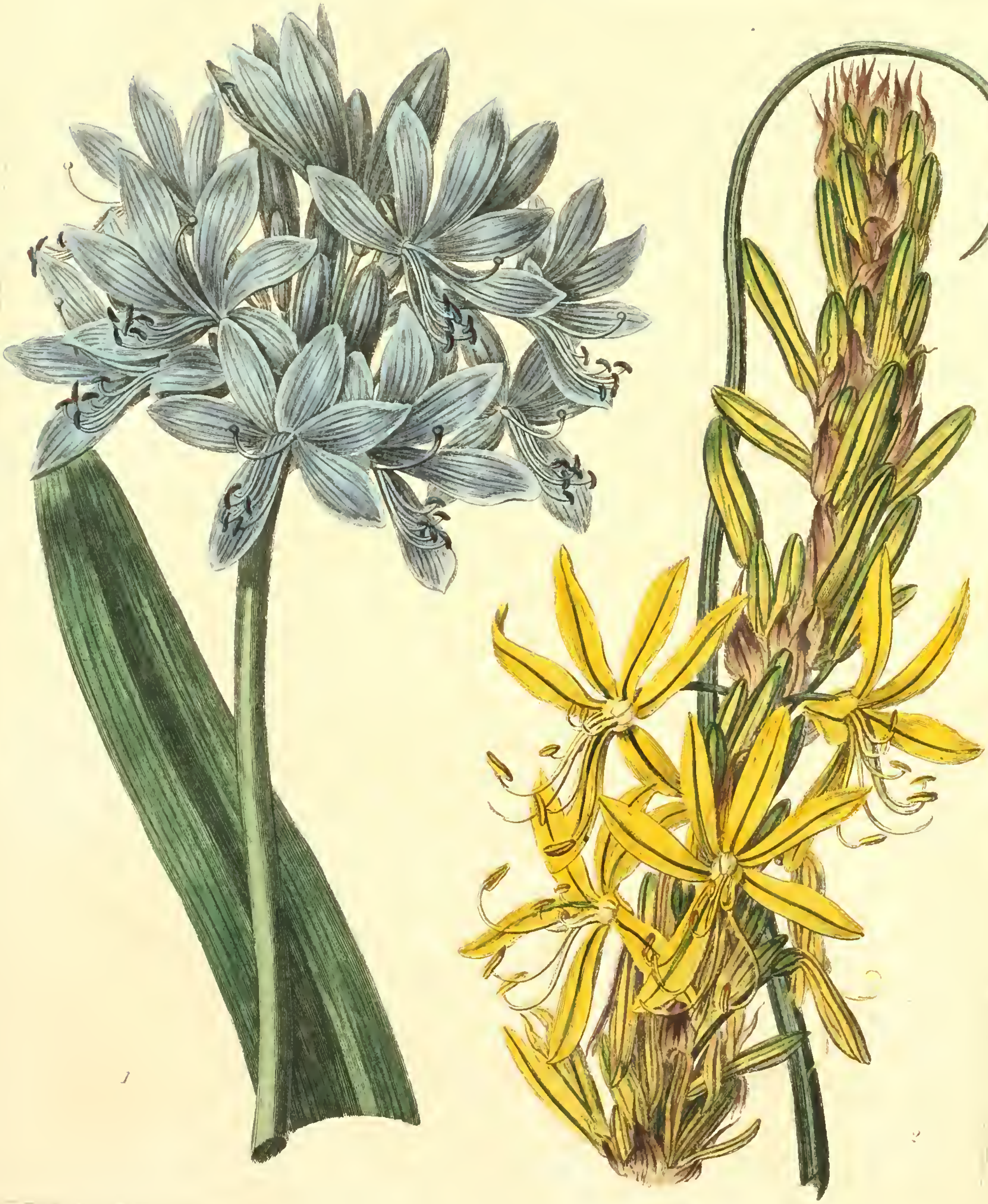
Culture.—The propagation of these plants may be easily effected by sowing the seed on a shady border of common earth in the autumn, as soon as they are taken from the plants, as when the sowing is deferred till the spring they are liable to remain in the soil until the same time in the following year before they come up, and much time is lost. From the irregular manner in which the plants mostly appear, the mould of the beds should be as little as possible disturbed, lest they be destroyed. When fully grown in the succeeding autumn, they may be transplanted into the situations where they are to remain, which should be rather shady.

The seeds of the second species are mostly sent annually from America, and should be put into the ground as soon as possible after they arrive.

As these plants rise to a considerable height, and are ornamented with leaves on the lower part of the stems, and with handsome spikes of flowers on the upper parts, they are well suited for adorning the common compartments and clumps of pleasure-grounds, especially where there is a degree of shade without the inconveniences of large trees; and also in the intervals between large shrubs in conspicuous situations, where, from their hardy nature, they will only require the same treatment as them.

As these plants are perennial in root, but annual in the leaf and stem, these last require to be cut off and cleaned away every autumn.

The berries of these plants are believed to have a poisonous property, a single berry being said to be capable of instantly destroying fowls and other birds.



Painted by S. Edwards London Published June 1 1806 by G. Kearsley Fleet Street Engraved by F. Sansom

1 *Agapanthus umbellatus*
African Agapanthus

2 *Asphodelus luteus*
Yellow Asphodel

PLATE III.

1. AGAPANTHUS UMBELLATUS.

AFRICAN AGAPANTHUS.

This genus comprehends the *African Lily*.

It belongs to the class and order of *Hexandria Monogynia*, and ranks in the natural order of *Liliaceæ*.

The characters of which are: that the calyx is a spathe common, gaping at the side: the corolla is one-petalled, funnel-shaped, and regular; the tube cornered, as if composed of six claws; the border six-parted, with the parts oblong and spreading: the stamina are six filaments inserted into the throat, shorter than the corolla, declinate: the antheræ are kidney-shaped and incumbent: the pistillum is a superior germ, oblong, three-cornered; the style filiform, of the length of the stamina, and declinate; the stigma simple or trifid: the pericarpium is an oblong capsule, three-sided, three-celled, three-valved: valves navicular, with contrary *dissepiment*: the seeds numerous, oblong, compressed, and enlarged with a membrane.

There is only one species, the *A. umbellatus*, African Blue, or Asphodel Lily.

It has the root composed of many thick fleshy fibres, diverging from the same head, striking deep into the ground, and putting out many smaller fibres, which are of a white colour and fleshy. From the same head arises a cluster of leaves surrounding each other at the base, so as to form a kind of herbaceous stalk about three inches in height, from which the leaves spread only two ways, appearing flat in the other two. The leaves are thick, succulent, about a foot long, and near an inch broad, compressed, and of a dark green colour. Between these comes out the flower-stalk, which is from two to three feet in height, round, and as large as a man's little finger, naked to the top, where it supports a large head or umbel of blue flowers, inclosed in a sheath, which splits into two parts, and is bent backward. Each flower stands on a pedicel about an inch long. The petals are blunt, and waved on their edges; the umbel being large, the flowers numerous, and of a bright blue colour, making a fine appearance.

They appear about the end of August, or the beginning of September, and frequently continue in full beauty till the spring.

It is a native of the Cape of Good Hope.

Culture.—This plant may be easily propagated by means of offsets taken from the parent plant. The operation of parting them is to be performed at the season when the process of vegetation is in the most languid state, which in this plant is generally about the latter end of June. In performing the work the old plants are to be turned out of their pots, and the mould cautiously cleared away from them, that the fibres of the offsets may be better ascertained. The offsets are then to be separated in such a manner as that their heads may not be injured. When they adhere very closely a knife may be employed for the purpose, being careful not to wound the bulb of either the old or new plant. After this has been accomplished the bulbs are to be planted out separately, in pots of good garden mould, and placed in shady situations that admit the morning sun. A little water should be given once or twice a week when the season is dry, care being taken not to endanger the rotting of the roots by applying it in too large a proportion. In four or five weeks, when the new planted bulbs have put out fresh roots, they should be removed into other situations that are more fully exposed to the influence of the sun, a little more water being cautiously applied in order to strengthen their flowering. The flower-stems mostly appear in the beginning of September, and towards the end of it the flowers begin to open. At this period, if the season be not quite favourable, the plants must be brought under shelter, in order to protect them from the effects of frost or too much wet, care being taken to admit the air as freely as possible, as without this the flowers become pale, weak, and of a bad colour. About the end of October it is necessary to remove them to the greenhouse, and place them in such situations as that they may have the advantage of free air without being shaded by other plants. During the winter season, when the weather is mild, a little water may be given occasionally; but in case of frost it must be wholly omitted, the plants being kept as dry as possible.

The only management that plants of this sort demand is that of protection from the effects of frost and too much moisture; it is of course only necessary to shelter them in the house in the winter months, without the aid of artificial heat, and place them out in the open air in summer.

2. ASPHODELUS LUTEUS.

YELLOW ASPHODEL.

This genus contains plants of the herbaceous perennial and annual flowery kinds, having fleshy fibrous roots. The King's Spear.

It belongs to the class and order *Hexandria Monogynia*, and ranks in the natural order of *Coronariæ.*

The characters of which are: that it has no calyx: the corolla is one-petalled, six-parted; the divisions lanceolate, flat, and spreading: the nectary consists of six very small valves, converging into a globe, inserted into the base of the corolla: the stamina have six filaments, subulate, inserted into the valves of the nectary, bowed; alternately shorter: the anthers are oblong, incumbent, and rising: the pistillum is a roundish germ, within the nectary: the style subulate, in the same situation with the stamens: stigma truncate: the pericarpium is a globular capsule, fleshy, three-lobed, and three-celled: the seeds several, triangular, and gibbous on one side.

The species are, 1. *A. luteus*, Yellow Asphodel, or King's Spear; 2. *A. ramosus*, Branched Greater White Asphodel, or King's Spear; 3. *A. fistulosus*, Hollow or Onion-leaved Minor Asphodel, or King's Spear.

The roots of the first are composed of many thick, fleshy, yellow tubers, joined into a head at the top; whence arise strong, round, single stalks, near three feet high, covered their whole length with long three-cornered, boat-shaped leaves, of a sea-green colour: the upper part of the stalk is adorned half way with yellow star-shaped flowers, which begin to open at bottom, so that on the same spike there is often a succession of flowers during a full month from the time of its beginning to flower, which is in June, or towards the end of May. It is a native of Sicily.

The second species has likewise roots composed of many thick fleshy fibres, to each of which is fastened an oblong tuber, as large as a small potato; the leaves are long and flexible, having acute edges; they grow in irregular clusters from the crown of the root; among these come out the stalks, which rise more than three feet high, sending out several side branches, which are naked; the upper parts of these are adorned with many star-shaped flowers, which are white with a purple line running longitudinally along the outside of each segment. They grow in long spikes, flowering successively from the bottom upwards. They appear the beginning of June, and the seeds ripen in autumn. It is a native of the south of Europe.

There is a variety, according to Miller, which is unbranched, with white flowers.

The third species is an annual plant. The roots are composed of many fleshy yellow fibres. The leaves are spread out from the crown of the root, close to the ground, in a large cluster; they are convex on their under side, but flat above, and hollow. The flower-stalks rise immediately from the root, and grow about two feet high, dividing upwards into three or four branches, which are adorned with white starry flowers, having purple lines on the outside: these come out in July and August, and their seeds ripen in October, soon after which the plants decay. It is native of the south of France.

Culture.—These are plants that require little trouble in their cultivation, and which succeed in almost any soil or situation. They are capable of being propagated by seeds and by parting the roots.

In the first method the seeds should be sown as soon as they are perfectly ripened in the autumn, upon a bed of light fresh earth in a warm aspect. The plants will rise in the early spring months, and after being kept clean during the summer, may be transplanted into fresh beds in the succeeding autumn or spring, at the distance of six inches from each other, and in the following autumn be planted out in the situations where they are to remain. But it is probably a better practice to remove the plants from the seed-bed into the places where they are to continue, as in this way they grow with more vigour. The third sort can only be raised from seeds, which should be sown in the autumn; and the plants, when they have put out three or four leaves, be removed into the places where they are to grow.

In the latter mode the slips or parted roots may be planted out, either on beds or in the places where they are to grow, in the autumn or early spring. In the former case the plants are usually allowed a summer's growth before they are removed. In either way the tops of the roots should be covered three or four inches with mold. They usually flower in the following summer.

The first species multiplies rapidly by roots, but the second more sparingly, and does not bear transplanting so well, as it is rendered more weak in its flowering.

The variety with white flowers is less hardy than either of these species.

In severe winters it is useful to protect the roots by the application of tan or stable-dung; and the stems should be annually cleared away when they begin to decay in the autumn.

These plants afford considerable variety, when properly intermixed with others of the flowering hardy kinds in the borders and other parts of pleasure-grounds, producing a good effect from their continuing long in blow.

PLATE IV.

1. ANEMONE HORTENSIS.

STAR ANEMONE.

This genus comprehends several plants of the tuberous-rooted flowery ornamental kind; being perennial in their roots, but annual in their stems and flowers.

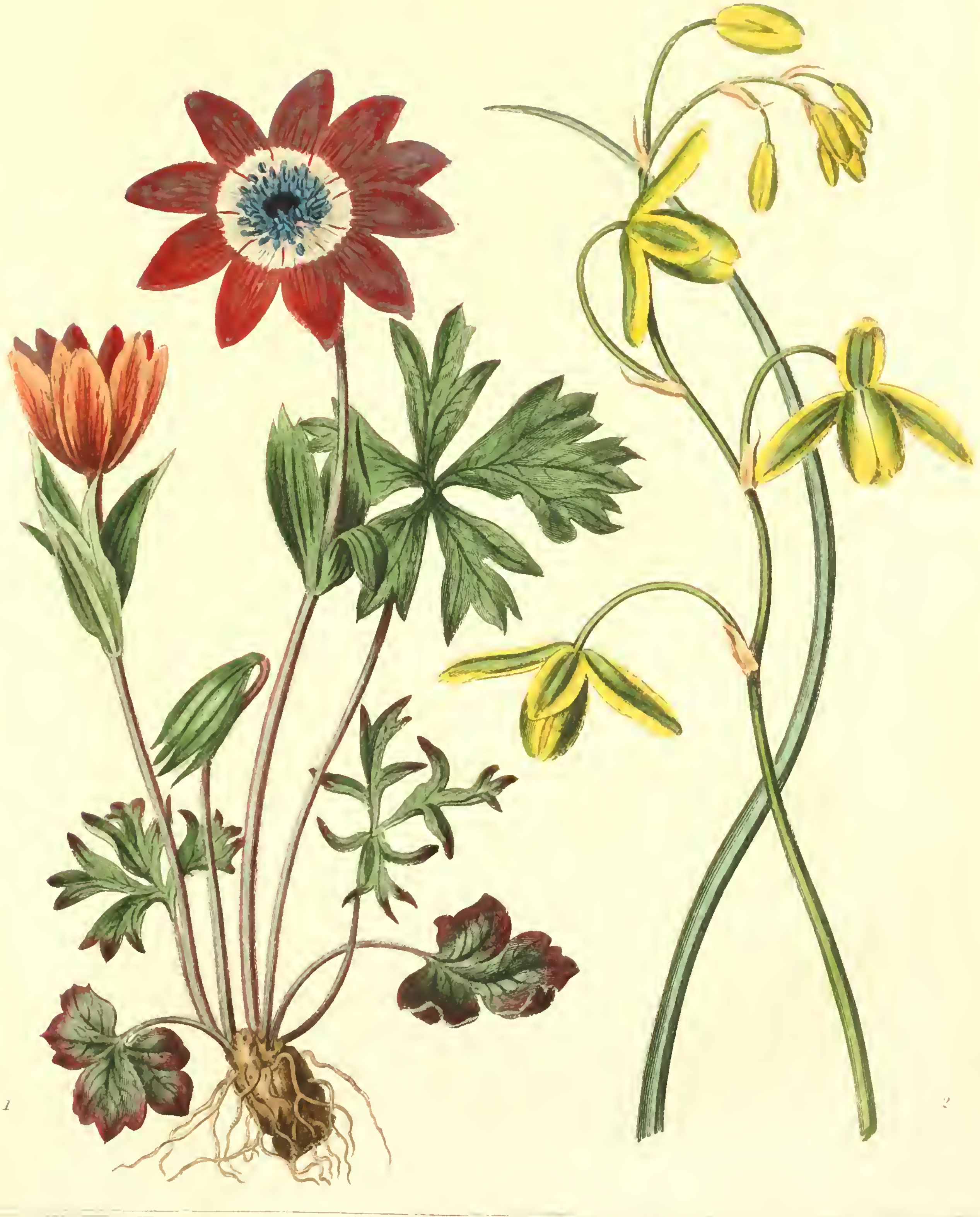
It belongs to the class and order *Polyandria Polygynia*, and ranks in the natural order of *Multisiliquæ.*

The characters are: that it has no calyx; that the corolla has petals in two or three rows, three in a row, somewhat oblong: the stamina have numerous filaments, capillary, half the length of the corolla: the anthers twin and erect: the pistillum has numerous germs in a head, the styles acuminate, and the stigmas obtuse: no pericarpium: the receptacle globular or oblong, hollowed, and dotted: the seeds very many, acuminate, retaining the style.

The species are very numerous; but those that most deserve the cultivator's attention in the Anemone kind are: 1. *A. coronaria*, Narrow-leaved Garden Anemone; 2. *A. hortensis*, Broad-leaved Garden Anemone; 3. *A. nemorosa*, Wood Anemone; 4. *A. apennina*, Mountain-blue Wood Anemone; 5. *A. ranunculoides*, Yellow-wood Anemone.

In the first species the flower-stems rise between the leaves immediately from the roots, two, three, or more from the same root, to the height of eight, ten, or twelve inches, having a leafy appendage or involucrum a little above the middle. The radical leaves are deeply divided into numerous segments, which are subdivided by threes into many narrow divisions. At the top each stem is adorned with a flower, which in the double sorts is large and very ornamental.

Pl. 1



Painted by Syd Edwards London Published July 1 1806 by G Kearsley Fleet Street [illegible]

1 Anemone hortensis
Star Anemone

2 Albuca minor
Leſser Albuca

It is a native of the Levant, where it grows single, but has been rendered double by cultivation.

The varieties are very numerous: in the single sorts, the Watchet or Pale Blue; the Common Purple; the Scarlet, and many intermediate varieties. In the double kinds, the Common Double Red and Scarlet; the Parti-coloured Crimson; the Crimson Velvet; the Great Double Blush; the White; the Lesser Blush; the Purple; the Blue; the Rose-coloured; the Carnation; the Purple Velvet; the Purple Velvet of three colours; the Double Brimstone; the Green, &c.

In the second sort the stems rise to the same height. According to Haller, the root-leaves are of two kinds; one very deeply gashed, so that they have the appearance of being five-fingered, but are in reality three-parted, the side-lobes being two-parted to the very base; all the lobes are narrow and sharp: the side ones deeply bifid, the middle ones trifid or quadrifid, the extreme ones sharply lanceolate: the other kind broad, deeply three-lobed, blunt, bluntly and shortly serrate at the tip, with an awn standing out. The leaf on the stem, or involucre, is ternate, the leaflets ovate-lanceolate. The peduncle is solitary and one-flowered, as in the first: the petals three times three (in the natural single flowers,) long, elliptic, marked with lines, the outer ones subhirsute on the outside, white at the base with green lines. The roots in this as well as the first consist of small tubers.

There are several varieties of this both with single and double flowers: the single and double Yellow: the Purple Starre Anemone, darker and paler; Violet Purple; Purple striped; Carnation; Gredeline, between a peach-colour and a violet; Cochenille, of a fine reddish violet or purple; Cardinal, of a rich crimson red; Bloud-red, of a deeper, but not so lively a red; Crimson; Stamell, near unto a scarlet; Incarnadine, of a fine delayed red or flesh-colour; Spanish Incarnate, of a lively flesh-colour, shadowed with yellow; Blush, of a fair whitish red; Nutmegge, of a dark whitish colour, striped with veins of a blush-colour; Monk's-gray, pale whitish tending to a gray; Great Orenge Tawnie; Lesser Orenge Tawnie: in the double, the great double Anemone of Constantinople, or Spanish Marigold; great double Orenge Tawnie: double Anemone of Cyprus; double Persian

Anemone; the common great double Variable Anemone; common double and variegated Scarlet; Red and Purple; variegated of these colours.

The best Star-Anemones are said to come from Brittany, where they raise yearly many fine sorts.

In the third species the root is perennial and creeping. The height of the whole plant from five to ten inches: the stem single, round, and pubescent; bearing one leaf, and one flower. The leaf is doubly ternate; each part being petioled; the petiole is flat and broad, particularly at the base; each part, or leaf (for some consider it as three leaves) is trifid; each leaflet being gash-serrate, and hairy underneath, especially on the nerves. The peduncle is from an inch to two inches in length, is only a continuation of the stem, and springs from the centre of the leaf. The flower consists of six or seven oblong-ovate petals, sometimes ending bluntly, sometimes emarginate, and the Editor of Miller's Dictionary has observed them not unfrequently even gashed or lacerate. The usual colour is white, but they are often tinged with purple on the outside, particularly the three outer ones; and sometimes they are entirely purple on both sides. The joint of the stem, and the backs of the leaves are also apt to be tinged with red.

The varieties are: with single flowers, with double white flowers, with single purple flowers, with double purple flowers, and with reddish purple flowers.

In the fourth species the root is perennial and tuberous; the stem round, purplish, and about a span high: the root-leaves on long petioles, ternate, and leaflets usually three-parted; the segments variously cut and divided, somewhat pointed, hairy on both sides; one three-parted leaf, or three leaves together on the stem, like the others, but on short, sheathing petioles. From the centre of these arises the peduncle, about a hand high, round and purplish, except near the flower, where it is green. The stem, leaves, and peduncle, are commonly slightly hairy: the flowers are upright, of a pale blue colour, and sweet smell; the petals oblong, from twelve to fifteen, and disposed in three rows. It flowers in April.

The varieties are: with single blue flowers, with double blue flowers, with single violet-coloured flowers, with double violet-coloured flowers.

The fifth differs from the above in having a yellow corolla, two petals alternately outer, and two inner, and one having one side within and the other side without the next petal; whereas that has three outer and three inner petals: it differs also in the peduncles being accompanied with two leaflets, the latter of which is furnished with three at the base. It flowers a little earlier than the other. It has sometimes two flowers on a stem, though often but one, the peduncles villose and short, so that the flower scarcely rises above the leaves: the petals are five, and roundish; the stamens about fifty. It grows wild in Sweden, &c.

In the Pulsatilla, or Pasque-flower sort, the species are: 1. *A. pulsatilla*, Pasque-flower; 2. *A. patens*, Woolly-leaved Pulsatilla, or Anemone; 3. *A. vernalis*, Early Spring Pulsatilla, or Anemone.

In the first species the peduncles are erect and round, from four to seven or eight inches in height, villose, one-flowered; lengthening after the flowering is past. The involucre multifid, with the divisions linear and villose. It sits close to the flower, but when that is fallen it is found almost in the middle of the peduncle. The corolla specious, and purple in colour; the petals lanceolate, and villose without; the seeds ovate, tailed, hairy, and scarcely adhering to the receptacle: the leaves rough and finely cut, with three or four pairs of pinnas and pinnules. It grows naturally in Sweden, and flowers in April.

The varieties are; with single blue flowers, with double blue flowers, with single and double white flowers, with single and double red flowers, and with violet-coloured flowers.

The second has the root perennial; the root-leaves are ternate-digitate; leaflets sessile, laciniate and acuminate, the middle leaflet tripartite, the side ones bipartite; the scape one-flowered, shorter than the leaves; the involucre remote and villose; the corolla white and villose underneath; the stamens yellow. It is a native of Siberia.

The third species has the flower red without, white within; it blows earlier than the Pasque-flower; the leaves approach those of Meadow-Rue; the stem is half a foot high, with a very tomentose, yellow, shining involucre in the middle, finely cut. When the flower is young, it is white with a blush of purple on the outside, where it is hairy: these hairs afterwards become yellow. The corolla consists of six convergent ovate-lanceolate petals: the stamens are very numerous. It grows in the woods in Sweden, &c.

In the Hepatica kind the only species is the *A. Hepatica*, or Hepatica.

In this the leaves of the year before remain, which are heart-shaped, three-lobed, obtuse, and smooth, beneath being veined in net-work: the petioles are cylindric, long, and rising: the bud has generally four outer scales, ovate and membranaceous; three inner ones, concealing the leaves and flowers; the peduncles three, cylindric, hairy, and one-flowered. The flower lies a year complete in all its parts within the bud. The corolla has six petals in two rows of three each, lanceolate, and spreading: the stamens are about twenty-five: the seeds oblong-ovate, involved in a silky substance; but many of them abortive. It is found wild in Sweden, &c. It flowers early.

The varieties in cultivation are numerous: the single and double blue, single and double red or peach-coloured, single and double white, single and double variegated red and white, single and double violet-coloured, with striped leaves.

Culture in the Garden kinds.—All the species and varieties of the garden and wood Anemones are capable of being propagated by offsets from, or dividing their roots. By sowing the seed, new varieties may also be obtained.

In order to procure the offsets, and dig over and prepare the beds, the best sorts should be annually taken up immediately on their leaves beginning to decay, as in the early part of June for the more forward sorts. They must then be divided, or have the offset knobs taken off. This work should always be performed in a dry season, the root-bulbs, after the earth has been removed, being deposited on a mat, in an airy dry place, where there is not much sun, being spread out in a thin manner. When they are become quite dry, the remainder of the earth should be rubbed off them, and they may be put up in bags or boxes, and placed in a situation where they cannot be injured by vermin. The roots should not be too much parted where they are intended to flower strongly, and each part should be furnished with a good eye. Where the taking up has been delayed till the roots begin to make new shoots, it will be too late to remove them that season.

In planting the roots or sets thus procured, or which have been purchased from the seedsmen, such situations should be chosen for blowing them in as are free from much moisture, and where the exposure is open to the influence of the sun and air, and free from the shade of trees. They will succeed and flower in tolerable perfection in any soil that is sufficiently light and friable in the mould; but in order to have them blow in the greatest perfection, beds should be prepared with earthy mixtures, made by taking off the surface of such lands as have been long in the state of sward, to the depth of eight or ten inches, where the earth is of the light sandy or hazel mould kind, throwing it up for some time that it may rot and become perfectly mellow; when rotten cow-dung, in the proportion of one-third, should be incorporated with it, by having them thrown up together into a heap, and frequently turned over afterwards; the stones and clods being carefully raked out and reduced; but the earth should not be sifted, as it is apt by such means to become too stiff and compact. Some advise the addition of drift or sea-sand, in the quantity of about one-fourth.

With this earth beds must be formed for the reception of the roots: these should be marked out to the breadth of about three feet and an half, with length sufficient for the quantity of roots, having alleys between them of from a foot to eighteen inches. The prepared mould is then to be dug or filled in to the depth of twelve or sixteen inches, leaving the surfaces of the beds from three to six inches above the common level of the ground, according to the wetness of the soil, giving them a little convexity when there is much moisture. Some recommend the putting of a layer of well-rotted cow-dung, about five inches in thickness, below the compost materials. The surface of the beds should be raked even before the roots are put in. In planting, six rows should be put in each bed, the roots being set at the distance of six inches from each other in the rows, and to the depth of two or three inches. When this has been done, the surface should be made smooth by raking it over lightly.

The time of planting should vary according to that which it is intended they should blow at. The best season where early flowering is intended is in the latter end of September or the beginning of the following month; for a middle flowering, about the middle of October; and for late flowering, the latter end of February. In this mode of planting a succession of flowers may be provided from April till the middle of June. Those roots that are planted the earliest are in general the strongest, and afford the best flowers, as well as the greatest increase of off-sets. It is always advisable to keep a few roots out of the ground till the spring season, for the purpose of a succession of flowers, and lest the early planted ones should be injured by the severity of the winter, which is sometimes the case where they are not covered to protect them from frost. These spring-planted roots flower a fortnight or three weeks after those which were planted in autumn, and many times blow equally as fair, especially if it prove a moist spring, and care be taken to refresh them gently with water.

But the increase of these roots will not be near so great as in those of the first planting, provided they are not hurt in winter; and it is for this reason that those who deal in these roots are forward in planting; as, although it may sometimes happen, by sharp pinching frosts in the spring, that their flowers are not so double and fair as those planted a little later, yet, if they can preserve the green leaves of the plants from being injured, the roots greatly increase in bulk. But in gardens where these flowers are preserved with care there is always provision made to cover them from the injuries of the weather, by arching the beds over with hoops or frames of wood, and covering them with garden mats or cloths in frosty nights, especially in the spring of the year, when their buds begin to appear: otherwise, if the best and most double flowers be planted, the black frosts and cutting winds in March will often cause them to blow single, by destroying the thrum that is in the middle of the flower;—a circumstance which has often occasioned persons who have bought the roots to think they were cheated, when it was wholly owing to their neglect of covering them.

But, besides this mode, these roots may be planted in borders, clumps, and other places, with much success and effect, in mixture with other plants; in which method three, four, or more roots should be planted together in patches of the breadth of five or six inches, being properly varied in distance and situation. And whether planted in beds or the borders a showery season should be chosen for the purpose, as in dry weather they are apt to become diseased,—proper care being taken to manage the distribution of the colours in such a way as to produce an agreeable variety. They may likewise be planted in pots, where the varieties are curious and valuable, three or more roots being put into each; and by being protected by frames, a green-house or hot-house during the winter season, they may be brought forward so as to flower very early and in great perfection.

In the wood sorts the propagation may be effected in the same manner as in the garden kinds; but the sooner the roots are taken up and divided after the decay of the leaves the better. The wild Anemones should be taken up when the leaves decline, and be planted out in proper situations.

In raising new varieties of these plants from seed, some of the best and most leafy single, or what are usually termed Poppy Anemones, should be provided, and planted out early that they may grow vigorously and afford good seed, which should be carefully collected a few weeks after their flowering is finished. Some, however, procure the seed from the shops. The best time of sowing is probably in August; but some advise the spring, as in March or the following month. This may be performed in boxes, pots, or broad earthen pans, where a small supply of roots only is wanted; but where the demand is great, it is best sown on beds prepared for the purpose. The proper soil or earth for this use is that of the light sandy kind. The seed should be sown as evenly as possible, but rather thick, and be covered by sifting light mould over it to the depth of about a quarter of an inch. The only attention necessary afterwards is that of occasionally shading the plants from the effects of the sun in hot weather, and giving them a gentle watering now and then. In about six weeks the plants will show themselves, when they should be kept perfectly free from weeds till the leaves begin to decay, when a covering of light sifted mould should be again applied, and another in the autumn may sometimes be required. During the winter they should be well protected from the frosts. In the second summer many of the plants will flower, and the best may be marked by a stick; but none should be destroyed till the third year. At this period the roots will begin to be too thick, and at the decay of the leaves must of course be taken up, which is best done by passing the mould through a fine sieve. And as when sown in beds many roots will be unavoidably left, they should be levelled, and suffered to remain till the following year. The roots that have been separated should be preserved, as before directed, for future planting.

These are all highly ornamental plants, capable of being employed with much effect in pleasure-grounds: many of them are hardy, flower early, and produce great variety in such situations. The wood sorts are very useful in adorning wilderness quarters. The double sorts, when in beds, afford much beauty and variety.

In the *pulsatilla kinds* the propagation may be accomplished either by the seed or dividing the roots. In the first method the seeds should be sown in boxes or pots filled with very light sandy earth, and not covered too deep with mould, which will prevent their rising, as they require no more than just to be covered. The boxes should be placed where they may have the advantage of the morning sun, but be screened from it in the heat of the day; and when the season is dry the earth be refreshed occasionally with water. The best time for sowing is in July or August, soon after the seed is ripened; as by keeping its vegetative power is apt to be destroyed. The boxes or pots should remain in such shady situations until the beginning of October, when they may be moved so as to enjoy the full sun during the winter season. In March, when the plants begin to appear, they should be again removed so as to have only the forenoon sun; for if they are too much exposed to heat the young plants are soon destroyed. They should be refreshed occasionally with water in dry weather, and be carefully kept clean from weeds.

When the leaves are entirely decayed, the roots should be taken up in the manner directed above; and as there will be many small roots left, the earth should either be returned into the boxes again, or spread upon a bed of light earth, to see what plants may rise the succeeding year. The roots after being thus taken up should be immediately replanted in beds of light fresh sandy earth, about three or four inches asunder; covering them about three inches thick with the same light earth. The spring following most of the plants will produce flowers, but not so large or fair as in the succeeding years. As the roots of these plants are fleshy, and generally run down deep, they will not bear to be kept long out of the ground; therefore, when they are removed, it should be done early in the autumn, that they may take fresh root before the frost sets in.

In this mode of propagation the plants thrive best in loamy soil; as in very light dry ground they are apt to be destroyed by too much heat.

These are plants that afford variety in the borders of pleasure-grounds, especially the first species and its varieties, which are hardy, succeeding in almost any situation.

In the *hepatica kind* the propagation may be effected in the single sorts either by the seed or the parting of the roots: but in the double it can only be done by the latter method. The seed of the single flowers frequently, however, produces double ones. New varieties are likewise raised in the former manner.

In the first method the most proper season for sowing the seeds is in the beginning of August, either in pots or boxes of light earth, which should be placed so as to have only the morning sun until

October, when they should be removed into the full sun to remain during the winter season: but in March, when the young plants begin to appear, they must be removed again to a shady situation, and in dry weather be frequently watered; when about the beginning of August they will be fit to be transplanted: at which time prepare a border of good fresh loamy earth, with an eastern aspect; into which remove the plants, placing them about six inches distance each way, closing the earth pretty well to their roots, to prevent the worms from drawing them out of the ground. In the spring following they begin to show their flowers; but it is three years before they flower strong, till which time their goodness cannot be ascertained: when if any double flowers, or such as are of a different colour from the common sorts, be found, they should be taken up and planted in the borders, where they should continue at least two years before they are taken up or parted; as it is remarkable in these plants, that where they are often removed and parted they are very apt to die; but when they are permitted to remain some years undisturbed, they grow rapidly, and become large roots. In propagating them by roots they should not therefore be often parted, or into too small parts.

Double-flowered plants, as they never produce seeds, are only capable of being propagated by parting their roots, which should be done in March, when they are in flower, care being taken not to separate them into very small heads. They should not be parted oftener than every third or fourth year, as they never thrive or blow well where this is the case.

These are plants that display much beauty, affording flowers very early in the beginning of the year. The double sorts are the most ornamental, as the flowers in them are much larger, and continue in blow much longer. These should therefore be placed in the most conspicuous situations in the borders or clumps of pleasure-grounds; but the single kinds deserve places for the sake of variety.

2. ALBUCA MINOR.

LESSER ALBUCA.

This genus furnishes different bulbous-rooted herbaceous perennial plants of the flowery ornamental kind.

It belongs to the class and order of *Hexandria Monogynia*, and ranks in the natural order of *Liliaceæ*.

The characters of which are: that it has no calyx: the corolla has six oblong-oval permanent petals, the three outer spreading, and the three inner converging: the stamina have filaments shorter than the corolla; three opposite to the inner petals, linear-subulate, complicate a little above the base, then flat, three opposite to the outer petals, thicker; antheræ on the former oblong, fixed to the inflex tip of the filament, below the middle upright; on the latter, similar, but effete, or none: the pistillum has an oblong triangular germ: style three-sided: stigma a triangular, three-celled, three-valved capsule: the seeds numerous, flat, lying over each other, and widening outwards.

The species are numerous; but those mostly for the purposes of ornament are: 1. *A. altissima*, Tall Albuca; 2. *A. major*, Great Albuca; 3. *A. minor*, Small Albuca; 4. *A. coarctata*, Channel-leaved Albuca; 5. *A. spiralis*, Spiral-leaved Albuca.

In the first species the leaves are so deeply channelled as to be almost rolled into a cylinder; two feet long, and almost three inches broad at the base. The scape a little shorter than the leaves, the thickness of a finger. The raceme two feet long or more. The peduncles bent downwards in the season of flowering, afterwards spreading and becoming finally erect; they are three inches in length. The bracteæ green, except at the edge, where they are of a clear white, an inch long. The flowers are of a white colour; and the petals more than an inch in length; the outer ones sharp and thickened at the tip, but the inner blunt, bent in, and having a twin gland, composed of two globes, at the end. The fertile filaments are waved on the edge, with the antheræ curved inwards beneath the glands of the petals: the barren filaments are triangular, furrowed on the outside, a little longer than the others, and have no antheræ. The germ is subpedicelled. The style obversely pyramidal, the length of the germ, covered with glandulous scales: the angles terminate in subulate horns, covered also with scales; the centre being elongated into a pyramidal stigma. It flowers in April and May.

In the second the scape is a foot high, upright, roundish, very minutely streaked, smooth, and ash-coloured, with a glaucous bloom on it. The leaves are sharp, smooth, and streaked, a foot long. The bracteæ are sheath-form, lanceolate, concave, with a long linear-subulate tip, red, nerved, smooth, straight, and solitary, at the base of the peduncles. The raceme terminating, long, of a crimson colour, and smooth: the flowers alternate, peduncled, slightly nodding; there being fewer at bottom. The peduncles round, smooth, one-flowered, longer than the bracteæ, and spreading. The petals linear, longitudinally nerved, marcescent; the three outer broader, a little concave, red, blunt at the end, bent in with a small marginal scale; the three inner narrower, upright, pale red, with a broad, thin, membranaceous, whitish rim on each side, and an ovate, membranaceous, inflex scale at the tip. The filaments erect, the length of the corolla, linear, membranaceous, whitish, joined at the base, inserted into the receptacle; they are alternately free, and fastened below by a broader base to the inner petals. Antheræ from incumbent upright; on the loose filaments barren; on the three others whitish with yellow pollen, linear, blunt at each end, emarginate, a little curved inwards, convex at the back, plano-concave in front, twin-furrowed. The germ fleshy, pyramidal-cylindric, blunt, crimson, smooth, with three calluses at the tip, on a short peduncle, ending in several small blunt teeth pressed close to it. The style very thick, somewhat flatted, with two of the angles nearer to each other, a little attenuated at the base, pubescent, red, shorter than the germ. The stigma blunt, of a yellowish red colour, pubescent at the edge. Capsule oval, smooth, transversely nerved, compressed, with two rims along the back. The seeds are orbiculate. It flowers in May.

In the third the leaves are a foot long and more, half an inch broad at the base. The scape half a foot high, scarcely a line in diameter. The raceme six inches in length, or even longer. The peduncles an inch and a half long. The bracteæ are green, with clear white edges, half an inch long, quickly withering. The flowers yellow. The petals less than an inch in length; the outer ones thickened at the tip; the inner having a white, inflex, kidney-shaped gland. Barren filaments, linear, with a filiform inflex tip, and no antheræ. The style obversely pyramidal, the length of the germ, covered with glandulous scales. The stigma pyramidal, prominent between the inner converging petals. It flowers in May and June.

The fourth species has the leaves linear-subulate, deeply channelled, two feet long and upwards, scarcely half an inch wide at the base. The scape a little shorter than the leaves, and not so thick as a goose quill. The raceme close, half a foot in length. The peduncles spreading, a little more than an inch in length. The bracteæ are almost the length of the peduncle. The flowers yellow. Outer petals oblong, thickened at the tip, above an inch in length; the inner ones oval, a little shorter than the outer ones. Barren filaments, somewhat shorter than the fertile ones, convex without, channelled within: the antheræ sagittate and effete. The style prism-shaped, the length of the germ, and terminated by a stigma from the angles of the style rounded at the tip. It flowers in May.

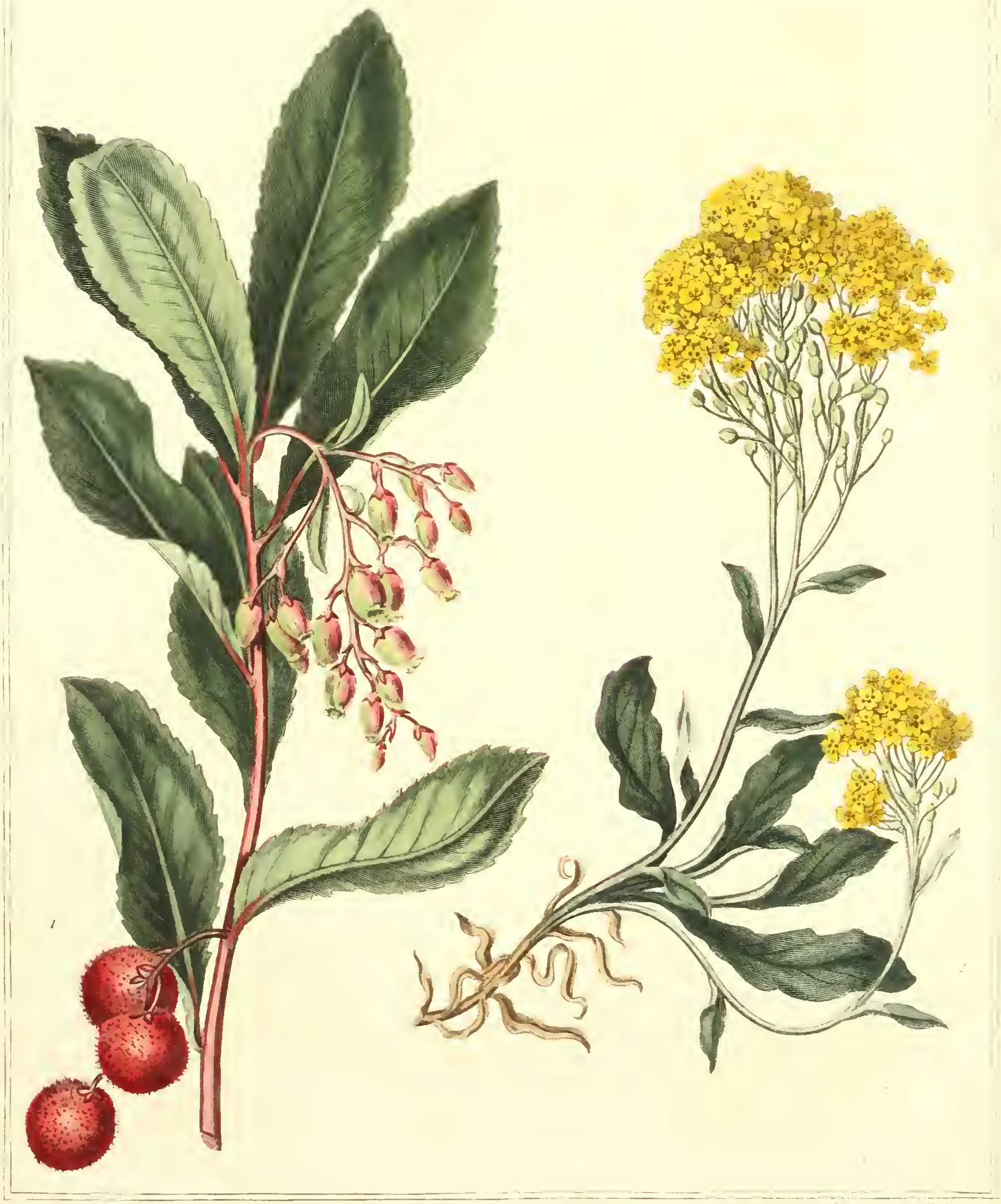
In the fifth the root-leaves are few, linear-filiform, upright at bottom, then spiral, and when the plant is more mature, flexuose, villose-scabrous, shorter than the scape, which is simple, filiform, flexuose, nodding at the top, streaked, villose-scabrous, of a finger's length, seldom a span long after flowering, one-flowered, seldom two-flowered. The bractea lanceolate, acuminate, shorter than the peduncle. There are three filaments without antheræ.

They are all natives of the Cape.

Culture.—The best method of propagating these plants, is by means of offsets from the roots, which should be taken after the plants have flowered in the summer months. These are then to be planted out in pots filled with good light mould, and placed under the protection of hot-bed frames during the winter season. In this way they mostly succeed and produce flowers. But it is a better practice, where the convenience of a border can be had in the front of the greenhouse or stove, to plant them in the natural ground in these situations, as in this method they both thrive better, and flower with more vigour than when kept in pots.

The third sort is asserted by Miller to be capable of being raised from seeds, when they can be procured from abroad, as they seldom or ever ripen any in this climate.

The second species is also said to be of so hardy a nature, as sometimes to succeed when planted out on a border of light earth, in the open ground. All the species are ornamental, and afford variety in the greenhouse or stove.



Painted by S. A. Edwards London Publiſhed Jan 1 1800 by G. Kearsley Fleet Street Engraved by F. Sansom

1 *Arbutus unedo.*
Strawberry Tree

2 *Alyſsum Saxatile*
Yellow Alyſsum

PLATE V.

1. ARBUTUS UNEDO.

STRAWBERRY TREE.

This genus contains plants of the evergreen, shrubby and ornamental kind.

It belongs to the class and order *Decandria Monogynia*, and ranks in the natural order of *Bicornes*.

The characters are: that the calyx is a five-parted, obtuse, very small permanent perianthium: the corolla is monopetalous, ovate, and flattish at the base, diaphanous, with a quinquefid mouth: the divisions obtuse, revolute and small: the stamina consist of ten subulate swelling filaments, very slender at the base, affixed to the edge of the base of corolla, and half the length of it: the antheræ slightly bifid and nodding: the pistillum is a subglobular germ, on a receptacle marked with ten dots: the style cylindric, the length of the corolla: the stigma thickish and obtuse: the pericarpium a roundish five-celled berry: the seeds small and bony.

The species of most importance are: 1. *A. Unedo*, Common Arbutus, or Strawberry Tree: 2. *A. Andrachne*, Oriental Strawberry Tree; 3. *A. Uva Ursi*, Trailing Arbutus, or Bearberry.

The first species, Common Arbutus, or Strawberry Tree, rises to the height of twenty or thirty feet in its native situation, but rarely with an upright stem. But with us it is of much humbler growth. It usually puts out branches very near the ground. The leaves keep on all the winter, and are thrust off in the spring by new ones, so that it is always clothed with leaves. The berries have many seeds in them, and are roughened with the tubercles of the seeds.

There are several varieties; as with large oval fruit, with round fruit, with double flowers, with scarlet flowers; there are also the curled-leaved or cut-leaved, the broad-leaved, and the narrow-leaved.

The second species much resembles the first, but the bark is not rough; some of the leaves have no serratures, and the panicle is upright and viscid, which in that is smooth. It grows in its native state to a middle-sized tree, with irregular branches. The leaves are smooth, large, and somewhat like those of the Bay Tree, but not quite so long: the flowers are like those of the Common Arbutus, but growing thinly on the branches: the fruit oval, of the same colour and consistence with the common sort; but the seeds of this are flat, while in that they are pointed and angular. It grows naturally in the East.

In the third species the branches trail upon the ground two or three feet round the root or more. The leaves are alternate, bluntly oval or oblong wedge-shaped, with a net-work of veins underneath, and corresponding wrinkles above, firm and evergreen, like those of Box: the flowers grow at the extremities of the branches in small clusters, each supported by a short red foot-stalk: they are of an oval-conical figure, flesh-coloured, or white with a red mouth, and divided into five obtuse reflex segments at the rim: the berries are round with a depressed umbilicus, smooth and glossy, red when ripe, and of the size of a holly-berry, replete with an austere mealy pulp, in which are five cells containing five angular seeds. It is a shrub very abundant in many parts of the continent, as Sweden, &c.

Culture.—The most usual method of raising these beautiful evergreens is by sowing the seeds; but they are sometimes capable of being raised by cuttings and layers.

In the first of these methods with the first species, the seeds should be collected when perfectly ripe in November, or the following month, and preserved in dry sand till the period of sowing, which may either be in December or the early spring season. The seed should be sown in pots, and lightly covered with mould, then plunged into an old tan hot-bed, and covered by glasses. In this mode the plants will be up in April, when they should be often but sparingly watered, and kept free from weeds.

As the hot season proceeds, the plants should be shaded during the heat of the days; but in warm weather open all night to receive the dew, and only covered in the middle of the day. In this mode the plants become strong the first summer. In the beginning of October they may be shaken out of the pots, and their roots carefully separated, planting them singly in small pots filled with light earth; then plunging the pots into an old bark-bed under a common frame, carefully shading them from the sun in the middle of the day, and giving them water as they require: in this bed the pots should remain during the winter, exposing them to the open air whenever the weather is favourable; but in frosty weather they should be covered, so as to protect them. In the spring following they may be removed to a gentle hot-bed, which requires no other covering but mats. This enables them to make strong shoots early in the summer, by which they become in a better condition to bear the cold of the succeeding winter. In this bed they should continue during the summer, and be well protected in the following winter.

After the plants are become two or three feet in height, shake them out of the pots, and plant them in the open ground in the places where they are to remain, which should be done in April, that they may have taken good root before the winter, which is apt to injure them when newly planted out: and as all the earth about their roots is thus preserved, they will succeed better.

The plants are tolerably hardy, and seldom hurt, except in extreme hard winters, which often destroy the young tender branches, but rarely the roots.

They delight in a generous but not too moist soil, as when planted in dry ground they seldom produce much fruit: the flowers coming forth in autumn, when the winter proves severe, they are generally destroyed; consequently, to obtain fruit, they should be placed in warm situations, and where the ground is not naturally moist; a good quantity of loam and rotten neat's dung should be laid about their roots, and in dry springs they should be plentifully watered.

The most proper season for transplanting is September, at which time the blossoms are beginning to appear; and when dry at that season, and they are kept moist, they very soon take root; but towards November their roots should be well covered to keep out the frost. In performing this business the balls of earth round their roots should be preserved.

In raising the second species the seeds must be procured from abroad, and the plants be left longer in the pots, as three or four years, or until they are become perfectly woody; and when put out, warm situations be chosen for the purpose, where the soil is dry, as the plants do not succeed well where the land is too moist.

The third species should be raised in pots filled with bog earth, which should be set out in moist watery situations.

In propagating them by the second method, or that of cuttings, they should be made from the young shoots, and be planted in pots in the spring or summer months, plunging them into a good hot-bed of tan or dung till they have stricken root.

In the layer mode of propagation the young shoots should be chosen, as they otherwise seldom take root in less than two years.

In grafting them, stocks of any of the varieties may be had recourse to.

It continuing the double-blossomed and scarlet varieties, some of these last methods must always be employed.

These are some of the most ornamental plants of the evergreen kind for shrubberies and pleasure-grounds that we possess. The first sort and varieties sometimes rise to a considerable height, as ten or fifteen feet. They are now found in most plantations, and in the months of October and November, which is the season when they are in flower, and the fruit of the former year is ripe, as it is a whole year in growing to perfection; they are very ornamental. When there is plenty both of fruit and flowers upon the trees, they indeed make a handsome appearance, as most other plants are past their beauty. The trees which have large oval fruit make the greatest figure; the flowers of this being larger and oblong. The variety with double flowers is a curiosity; but the flowers, having only two rows of petals, make no great appearance, nor do the trees produce fruit in any quantity; the other is therefore preferable. That with red flowers makes a pretty variety, when intermixed with the other, for the outsides of shrubberies, as they are of a fine red colour at their first appearance, and afterwards change to purple before they fall off. The fruit in this is the same as in the common sort.

As the leaves of the Andrachne are larger than in the other sorts, they have always a better effect as evergreens.

2. ALYSSUM SAXATILA.

YELLOW ALYSSUM.

This genus comprises several species of under shrubby, herbaceous, perennial plants of the *Alysson* or *Madwort* kind, that are chiefly flowery and ornamental.

It belongs to the class and order *Tetradynamia Siliculosa*, and ranks in the natural order of *Siliquosæ*.

The characters of which are: that the calyx is a four-leaved, oblong perianthium, the leaflets ovate, oblong, obtuse, convergent, and deciduous: the corolla four-petalled and cruciform: the petals flat, shorter than the calyx, very spreading, having claws of the length of the calyx: the stamina have six filaments of the length of the calyx, two opposite, a little shorter, marked with a toothlet: antheræ from erect spreading: the pistillum has a sub-ovate germ, the style simple, of the length of the stamina, longer than the germ, and the stigma obtuse: the pericarpium is a subglobose, emarginate silicle, or broad and short pod, with a style of the length of the silicle, two-celled, the partitions elliptic, and hemispherical; the seeds are fixed to filiform receptacles issuing forth at the end of the silicle, few and orbicular.

There are many species, but those chiefly cultivated are: 1 *A. spi-*

nosum, Thorny or Prickly Alysson; 2. *A. halimifolium*, Sweet or Sea Purslane-leaved Alysson; 3. *A. saxatile*, Yellow Rock Alysson; 4. *A. incanum*, Hoary Erect Alysson; 5. *A. calycinum*, Calycine Alysson; 6. *A. campestre*, Field Alysson; 7. *A. creticum*, Cretan Yellow Alysson; 8. *A. deltoideum*, Deltoid-leaved Alysson; 9. *A. montanum*, Mountain Dark-yellow Alysson.

The first species has woody branches, which rise about two feet high, and are armed with small spines. The leaves are hoary, lanceolate, and thinly placed on the stalks without any order. The flowers grow in small clusters at the extremities of the branches. The petals are white and entire, and the filaments toothless. It is a native of Italy.

The second species spreads itself upon the ground, and never rises to any height. The leaves are narrow, spear-shaped, pointed, and entire. At the extremities of its branches it produces very pretty tufts of small white-coloured flowers, of which the plant is seldom destitute for six or seven months together. In it the stamina are simple, and the silicles roundish and entire. It is a native of the southern countries of Europe.

The third is also a low plant, with a fleshy stalk, which seldom rises more than one foot high, but divides into many smaller branches, which grow near the ground, so that a single plant spreads to a considerable distance. The leaves are spear-shaped, soft waved and entire: the flowers produced in loose panicles at the extremity of every branch, and are of a bright yellow-colour. They mostly appear about the end of April, or beginning of May; and, if the season be moderate, continue three weeks or more in beauty. It is a small, showy, hardy plant, and not disposed to overrun others. It frequently flowers a second time in autumn.

The fourth species grows to the height of two feet, having woody stalks, which divide into several branches towards the top. The leaves are spear-shaped, hoary, and entire. At the extremity of every shoot the flowers are produced in round bunches; and are small and of a white colour. The silicle is entire, oval, and full of brown seeds. It grows naturally in the South of France.

The fifth is nearly of similar growth in the stem, and the leaves have much resemblance; but the four longer filaments are toothed in the middle within, and the two shorter ones put out from their base a lance-shaped scale, the length of the germ. The petals are very small, scarce apparently emarginate, yellow, but growing white with age. Silicle slightly emarginate, with two seeds in each cell. It is found wild in Austria.

The sixth is very like the last in stem, leaves, and petals, but is more decumbent, and has lance-ovate leaves. The filaments have no teeth, but the two solitary ones have a bristle on each side, not growing to the filament, but inserted into the receptacle. Silicles ovate, scarcely compressed, more downy. It is found in France, &c.

The seventh species grows more erect, having a shrubby stalk, which sends out a few lateral branches towards the top, with oblong hoary leaves. The flowers grow in small clusters at the extremities of the branches. It seldom continues longer than two years in England, and in a warm, dry situation, will live in the open air. It is found in Spain, &c.

In the eighth, the stems are woody, filiform, diffused, and hairy, the older ones having the bases of the petioles toothleted, and are flexuose. The leaves are lanceolate, with a strong angle or two on each side, as it were deltoid, green, with a few hairs. The raceme is simple, few-flowered: the flowers resemble those of the Stock Gilliflower, and are of a purple colour; the calyx is oblong, closed, and gibbous at the base. It has been found in the Levant.

In the ninth species, the branches are trailing: the leaves oblong, hoary, rough to the touch, and alternate. The flowers are produced in small clusters at the extremities of the branches, and are of a dark yellow colour. Four of the filaments are bifid at the top; the two others have a toothlet at the base. It grows naturally upon rocks in Burgundy, and some other parts of France, &c.

Culture.—The propagation of these plants may be effected in different ways. It may be accomplished in all the sorts by means of seeds; and in most of the kinds by slips and cuttings from the shoots. In the first method, the seeds should be sown upon a border of rather poor, dry, light earth, about the beginning of April, being lightly raked in. When sown on rich soils the plants seldom survive the winter in this climate; but if they be put in on such as are of a dry, rocky, or gravelly nature, and of a bad poor quality, they not only withstand the cold better, but continue much longer, as they are less succulent, and of course less affected by frosts in the winter season.

In this mode of sowing, the plants will be ready to be transplanted in the beginning of the following autumn. The business should be performed when the weather is not too moist.

As the second kind rarely continues more than two or three years in this climate, it must be often sown to preserve it; but where the seeds are suffered to fall and remain upon the ground, the plants often rise without any trouble or difficulty.

In the third sort the seeds mostly ripen in July; but it is only from the young plants that they can be expected, as the old ones, or those which are raised from slips or cuttings, rarely produce any in this climate.

The fourth kind mostly flowers from June to September, and the seeds ripen soon after; which, if they be permitted to scatter, the plants will come up, and require little care or trouble afterwards.

The fifth and sixth sorts should always be sown where they are to remain; and if they be thinned and kept clean from weeds, they will flower in July, and perfect their seeds in autumn.

But the seeds in the seventh sort should be sown in August, soon after they are ripe; and where a few of the plants are potted in October, and sheltered under a frame in winter, they will flower the following June, by which means good seeds may be obtained the same year: as those plants, which arise early in the year, grow luxuriantly in summer, but do not often ripen seeds, or live through the winter season.

In the second and third methods, or those by slips and cuttings, the sets are best put in on dry borders about the latter end of April or beginning of May, the mould being applied closely round them.

They should afterwards be shaded in the heat of the day, and watered occasionally till they have stricken root.

The eighth sort, as it rarely produces seed in this climate, may be best propagated from its trailing branches, which, if planted in April, will take root and become good plants by the following autumn, when two or three of them may be placed in a common frame for shelter in winter, in order to preserve the species; as in hard winters, those which are exposed are sometimes destroyed.

This is properly a rock plant, being hardy, and forming with very little care a neat tuft of flowers, and is not apt to encroach on its neighbours. It is valuable as an ornamental plant from its beginning to flower in March, and continuing through the summer. All these plants may be employed in borders for the purpose of affording variety, and some of them in the way of adorning rock works.

PLATE VI.

1. ANTHERICUM LILIASTRUM.

SAVOY ANTHERICUM.

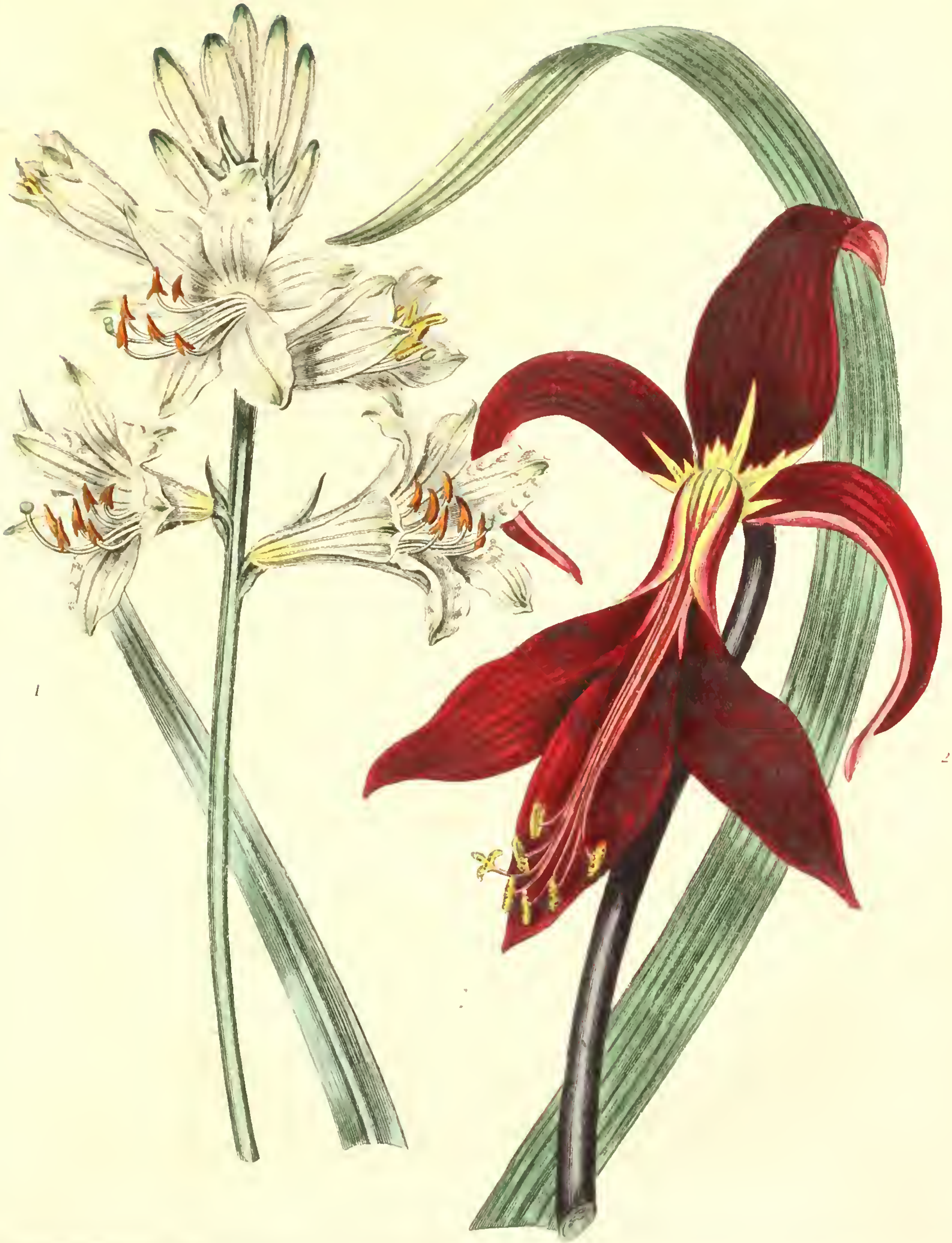
This genus includes plants of the herbaceous flowery Spider-wort kinds.

It belongs to the class and order *Hexandria Monogynia*, and ranks in the natural order of *Coronariæ*.

The characters are: that there is no calyx: the corolla consists of six oblong, obtuse, very spreading petals: the stamina are subulate, erect filaments: the antheræ small, incumbent, and four-furrowed: the pistillum is a germ obscurely three-cornered: the style simple, and of the length of the stamina: the stigma obtuse, and three-cornered: the pericarpium an ovate, smooth, three-furrowed, three-celled, and three-valved capsule: the seeds numerous and angular.

The species are numerous, but those that most deserve cultivation are: 1. *A revolutum*, Curled-flowered Anthericum; 2. *A. ramosum*, Branching Anthericum; 3. *A. elatum*, Tall Anthericum; 4. *A. liliago*, Grass-leaved Anthericum; 5. *A. liliastrum*, Savoy Anthericum, or Spider-wort; 6. *frutescens*, Shrubby Anthericum; 7. *A. aloo-ides*, Aloe-leaved Anthericum; 8. *A. asphodeloides*, Mock Asphodel, or Glaucous-leaved Anthericum.

In the first the roots are fleshy, and composed of tubers joined at the crown, like those of the Asphodel: the stalk rises near two feet high, and branches out on each side; each branch being terminated by a loose spike of flowers, which are white, and the petals are turned backward to their peduncle. And according to Murray,



Painted by Sydᵗ Edwards London Published July 1st 1805, by G. Kearsley Fleet Street

1 Anthericum Liliastrum
Savoy Anthericum

2 Amaryllis formosissima
Jacobean Amaryllis

the root-leaves are numerous, only one-third of the height of the scape, subulate, channelled at the base, then keeled and flat, striated, an inch and half broad, and spreading: the scape four feet high, almost naked, round, smooth and oblique: the bractes five, gibbous at the base, pressed close, subulate, the lower ones larger like the leaves, the upper ones scaly and shrivelling: the corymb terminating, compressed, having six round, long, alternate branches, knotted where the flowers spring forth: the flowers alternate, solitary, or two, sometimes three together, on small gray pedicels, thicker at the top, each supported by a little subulate bracte: the corolla inferior: the petals lanceolate-ovate, reflex, obtuse, concave at the tip, white, except towards the end on the outside, where they are brownish green: the filaments a little shorter than the corolla: anthers erect, oblong, revolute as they wither: the root similar to that of the *Hæmanthus puniceus.* It is a native of the Cape of Good Hope.

In the second species the root is round, and the stalks rise about the same height as the former, sending out many lateral branches in like manner, which are terminated by loose spikes of flowers: the leaves are hard and grassy, none on the scape, which is loosely panicled, with one-flowered peduncles: the corollas white: the petals flat, and not turning back as in the former sort: the three outer petals narrower than the others, lanceolate and sessile: the three inner oval and petioled. In each angle of the germ a small melliferous pore. It is a native of Sweden, &c. The flowers watch from seven in the morning to three or four in the afternoon.

The third has the roots composed of many tubers, each about the size of a little finger at top, and diminishing gradually to the size of a straw: the leaves from seven or eight, to nine or ten inches in length, and an inch and half broad in the middle, lessening gradually to both ends; they are smooth and glaucous: the flower-stem about two feet high, dividing into several branches, having a few narrow leaves, generally one at every division of the branch: the flowers form a loose spike, and are white. This plant has been lately recovered from seeds which were sent from the Cape to England and Holland. It usually blows in August and September.

In the fourth species the roots are numerous, round, and collected into a tuber crowned with bristles; the leaves from the root many, firm, a foot long, carinated and grassy: the scape erect, eighteen inches high, firm: the spike loose, ten-flowered, and the peduncles simple: the flower two inches wide; petals in two ranks: the inner widest, petiolate and pure white: the outer have a green line running along beneath. It is a native of Italy, &c.

The fifth species has the root fascicled, with fleshy fibres. It has the corolla of the white Lily: the leaves grassy, soft, broader than two lines, the radical ones very long: the scape a foot or eighteen inches high: the spike thin-set with spreading flowers, on simple peduncles: the stipules coloured, ovate-lanceolate: the corolla above an inch in diameter, gradually widening; petals tender and white; ovate, thin, lanceolate, with a reflex point, which is thicker and has a green dot: they are marked with lines, and sweet-scented: the stamens almost as long as the petals, with weak filaments. In France it is called St. Bruno's Lily.

There are two varieties of this, one with a flower-stalk more than a foot and half high, the other with the stems much the same: the flowers are much larger in the former, and there is a greater number upon each stalk than in the latter. It is a native of Switzerland and Savoy.

The sixth species differs from the seventh by rising into a stem and branches, by having the leaves greener, longer, and narrower, with a firmer pulp, and a viscid juice flowing copiously from them when cut, of a greenish yellow colour: the root is fibrous, and not only the stem, but even the branches put out fibres, which hang down, and when they reach the ground strike root. It is a native of the Cape of Good Hope, and was formerly known by the name of Onion-leaved Aloe.

The seventh has broad, flat, pulpy leaves, resembling those of some sorts of Aloe, and was formerly on that account called Aloe with flowers of Spiderwort. The leaves spread open, are broader and more translucid, soft and pulpy, than the above, pouring out a limpid juice: the root is tuberous: the flowers are produced on loose spikes, like the former, but are shorter; they are yellow, and appear at different seasons. This species grows close to the ground, never rising with any stalk. It is a native of the Cape of Good Hope.

The eighth has the leaves scarcely striated, but rough at the edge; more gibbous at the back towards one side; they are long, narrow and pulpy, almost taper, but flatted on their upper side: the flowers are yellow, and grow on long loose spikes as the former; these appear at different seasons; those of the spring and summer are succeeded by seeds in great plenty, which ripen. It is a native of the Cape.

Culture.—These perennials are in general capable of being propagated by the roots, offsets and suckers; but as some of the species do not supply them in sufficiency, they may be raised from the seeds.

In the first method the best season for the purpose is in the latter end of summer and beginning of the autumn, in beds of light vegetable earth in warm open situations, free from the shade and droppings of trees. An eastern aspect, where the plants are properly shaded from the sun in the mid-day, is preferable for some of the sorts, as they keep longer in blow and beauty.

This is likewise the proper period of transplanting, as when the business is performed in the spring the plants seldom flower the same year. This should not be done oftener than once in about three years, where increase is intended; and in the execution of the work the roots should not be too much divided, as when that is the case they do not flower well.

In the second method, or that by sowing the seeds, the best season is probably the spring, though they may be sown in the autumn. A bed of good light vegetable mould is the best for the purpose, and the situation should be sheltered and warm. The plants soon appear, and when their leaves begin to decay in the autumn they should be taken up carefully, and transplanted out into another bed of the same sort of earth, at the distance of from nine inches to a foot from each other. When the winter season is severe they should be protected from the frost by a thin covering of tan or some other substance. In this situation they should continue for about twelve months, when they will in general be sufficiently strong for flowering. In the following autumn they must of course be taken up without injuring the fibres of the roots, and be planted out in the clumps, borders, or other places where they are to remain. As they are apt to be destroyed by frost in the winter season, care should be taken to protect them as much as possible.

The Cape sorts are capable of being raised by seeds; but this is seldom necessary, as they multiply greatly by offsets and suckers; which may be taken off at the period mentioned above, and planted out in pots of good bog earth, a very small portion of water being given, as much is apt to rot and destroy the roots. As these are tender plants they require the constant protection of a green-house stove or frames during the winter season. In these situations they should be managed with great attention and care.

2. AMARYLLIS FORMOSISSIMA.

JACOBEAN AMARYLLIS.

This genus comprehends several species of the *Lily-Daffodil* kind of plants; all of which are of the bulbous-rooted tribe, and mostly ornamental.

It belongs to the class and order *Hexandria Monogynia*, and ranks in the natural order of *Liliaceæ*.

The characters are: that the calyx is a spathe, oblong, obtuse, compressed, emarginate, gaping on the flat side, and withering: the corolla has six petals, lanceolate: the nectary has six very short scales, without the base of the filaments: the stamina have six awl-shaped filaments, with oblong, incumbent, rising antheræ: the pistillum has a roundish, furrowed, inferior germ, the style filiform, almost of the length and in the situation of the stamina: the stigma trifid and slender: the pericarpium is a subovate, three-celled capsule, and the seeds are several. The inflection of the petals, stamina, and pistillum, is very various in the different species of this genus; and the corolla in most of the species is rather hexapetaloid than six-petalled.

The species are very numerous, but those principally cultivated are: 1. *A. lutea*, Yellow Amaryllis, or Autumnal Narcissus; 2. *A. atamasco*, Atamasco Lily; 3. *A. formosissima*, Jacobæa Lily; 4. *A. reginæ*, Mexican Lily; 5. *A. purpurea*, Purple-flowered Amaryllis; 6. *A. belladonna*, Belladonna Lily; 7. *A. vittata*, Superb or Ribband Amaryllis; 8. *A. longifolia*, Long-leaved Amaryllis; 9. *A. orientalis*, Broad-leaved African Amaryllis; 10. *A. sarniensis,* Guernsey Lily; 11. *A. zeylanica*, Ceylon Lily; 12. *A. latifolia*, Broad-leaved Amaryllis.

In the first species, or Yellow Amaryllis, the flower-stems seldom rise above three or four inches in height: the flowers are shaped somewhat like those of the Large Yellow Crocus, one coming up from each sheath: the leaves are green, and come up at the same time, like the Saffron: and after the flowers are past, they increase all the winter. The roots are shaped like those of the Narcissus. It flowers in September, and is a native of the South of France.

The second species, or Atamasco Lily, has the flowers at their first appearance of a fine carnation colour on the outside, but which fade till they are almost white. They are nearly as large as those of the Small Orange Lily, but do not grow above six or eight inches in height. They appear about the end of May or beginning of June, and sometimes in August. It is a native of Virginia.

In the third, or Jacobæa Lily, the flower-stems are produced from the sides of the bulbs, so that after the flower produced on one side is decayed, another stalk arises from the other side of the bulb; but there is usually no more than one flower produced on the same stalk. The flowers are large, and of a very deep red; the under petals are very large, and the whole flower stands nodding on one side of the stalk, making a most beautiful appearance. It is a native of South America.

The fourth, or Mexican Lily, has the bulb of a green colour; the scape round, and sub-compressed. The corolla scarlet, with a bottom of a whitish green: the three outer petals reversed at the tip, the three inner fringed at the base, the style red. The flower-stems seldom rise more than one foot in height; each stem supports two, three, or four flowers, rarely more: they are large, and of a bright copper-colour, inclining to red: the spathe, which covers the buds before they open, divides into two parts to the bottom, standing on each side the umbel of flowers, joined to the peduncles. It flowers constantly in the spring, when it is placed in a very warm stove; and is in beauty in February; those which are in a moderate temperature of air, flowering in March or April.

In the fifth the corolla is large, and of a blood-red, or purple-colour, and there are three or four large bell-shaped, rather erect flowers coming from each sheath. It is a native of the Cape of Good Hope.

The sixth, or Belladonna Lily, differs from the fourth species in having the edges of the petals waved, and not reversed at the tip. The scape is purple, sustaining from five to seven flowers, in shape like the Common Red Lily, and nearly as large, but of a soft purple colour, inclining to white on the inside toward the bottom, and having an agreeable scent. It usually flowers about the end of September, or the beginning of October, in this climate; and if the roots are strong, the stems will rise upwards of two feet high. If the season is favourable, or the flowers be screened from frosts, violent winds and heavy rains, they continue in beauty a month or longer; and are very ornamental plants at a season when there is a great scarcity of flowers. It is a native of the West Indies.

In the seventh, the petals uniting at bottom form a fleshy tube, but the edges of the outer ones are free at the base. It has been named *vittata*, from its ribband-like appearance, being striped with red on a white ground. The stem rises to the height of three feet or more, and produces from two to five beautiful flowers. It usually blossoms in April or May, but may be forwarded by artificial heat.

In the eighth species, the flower-stem rarely rises more than three or four inches in height, but supports a great number of flowers, of a deep purple-colour, appearing in December. The bulbs are large, and the leaves long and narrow. It flowers here in July, and is a native of the Cape of Good Hope.

In the ninth, or Broad-leaved African Amaryllis, the bulbs are large and almost round; the leaves long, broad, and rounded at their extremities, spreading two ways on the surface of the ground, and do not come up till after the flower-stem appears, which is generally in November; and after the flowers are past, the leaves increase till spring, and in May they begin to decay, so that from the middle of June to October the plant is void of leaves. It grows naturally at the Cape of Good Hope.

In the tenths pecies, or Guernsey Lily, the bulb is an oblong spheroid, flatted most at the lower end, six or seven inches round where thickest: the leaves are of a dark willow green colour, shining, from half an inch to three quarters of an inch in breadth, a little blunt at the end, from two to four in number, rarely five. The scape is flattened, twelve or fourteen inches in height, and more. The spathe splits, and falls back in two unequal pieces of a reddish colour and triangular figure. The pedicels are from an inch to almost two inches in length. The number of flowers commonly from eight to twelve, the circumference of each being about seven inches. The corolla, when in its prime, has the colour of a fine gold tissue wrought on a rose-coloured ground; and when it begins to fade, it is a pink: if beheld in a full-shine, it seems to be studded with diamonds, but by candle-light the specks or spangles look more like fine gold dust: when the petals begin to wither, they assume a deep crimson colour. The flowers begin to come out at the end of August, and the head is usually three weeks in gradually expanding itself. This beautiful plant is a native of Japan, and has been long naturalized in Guernsey.

The eleventh species has the stature of the Crinum Americanum. The leaves are fleshy, scabrous with a toothleted edge. The spathe bivalve, besides some interior scales or fragments. The germs are sessile. The tube of the corolla of the same colour with the scape, which is rufous. The border white, with lanceolate, recurved petals, with a red keel underneath. The filaments and style are of a blood-red colour, and the pericarps viviparous.

The twelfth has roots like the Crinum mentioned below: the leaves narrower at their base, and stained with purple on their under side; the scapes purple, and growing to the same height as those of the Crinum Asiaticum; the flowers of the same shape, but the tube purple, and the segments having a purple stripe running through them: the stamina are also purple; it is however more beautiful than that plant. This is a native of the East Indies.

Culture.—In all the different sorts, the propagation is performed by the small bulbs or offsets that are removed from the sides of the old roots every year at the time they are transplanted. Some of the sorts, as the first and second, are often capable of being raised on dry warm borders; but most of the others stand in need of artificial heat to raise them in the most perfect manner.

They all delight in a loose, sandy, dry soil, that contains a good proportion of vegetable mould; and require but little water, except where the roots are in a high state of growth, and sending forth their flower-stems; when they should have it frequently in small quantities. When applied under other circumstances, it is apt to rot and destroy the bulbs.

All the more tender sorts should be put in pots, and placed in stoves, where they must be constantly kept; as much air as possible being admitted to them during the hot summer months. Some of them are, however, capable of bearing the open air at this season: but in this method of management they neither grow so well, or flower so regularly, as in the stove mode of treatment.

The most suitable season for transplanting the roots of all the different species, is at the time when their leaves are wholly destroyed, as about the latter end of July, or the beginning of the following month, before they begin to send forth new root-fibres, as after that has taken place they are liable to be greatly injured by being removed from their situations.

The first kind, or Yellow Autumnal Amaryllis, is a hardy plant, and may be increased with great facility by offsets from the roots. The best season for transplanting the root-bulbs of this sort is any time from May to the end of July, when their leaves are decayed: but after that period it will be too late to remove them, as they mostly begin to push out fresh root-fibres about the middle of August or sooner, if the season be moist and warm, frequently flowering the beginning of September; so that, if the business of transplanting be performed so late as this, it will spoil their flowering. This plant is capable of growing in any soil or situation; but it thrives to the best advantage in those of the above kind, when sufficiently fresh and light, and in open situations, that are not under the dripping of trees, or too near walls, or other tall fences that produce much shade. Miller observes that it is commonly known to gardeners by the name of Yellow Autumnal Narcissus; and usually sold by them with Calchicums for autumnal ornaments to gardens; for which purpose it is a pretty plant, as it will frequently keep flowering from the beginning of September to the middle of November, in case the frost is not so severe as to destroy the flowers; for though there is but one flower in each cover, a succession of flowers is produced from the same root, especially when they are suffered to remain three or four years without being removed.

A dry warm border is the best exposure for this sort.

The second species, or Atamasco Lily, is also so hardy as to thrive in the open air in this climate, when the root-bulbs are planted out in a warm situation and on a dry soil: it is likewise best propagated by offsets from the root-bulbs of the old plants. As very severe frost is liable to destroy the bulbs in some cases, a few should always be planted in pots, in order that they may be protected in the winter season.

The third sort, or Jacobæa Lily, is of the more tender kind, but is now become common in the gardens of the curious in this country. The root-bulbs send forth plenty of offsets, especially when they are kept in a moderate warmth in the winter season: for the roots of this kind will live in a good greenhouse, or they may be preserved through the winter under a common hot-bed frame; but in this way they do not flower so often, or send out so many offsets, as when they are placed in a moderate stove in that season. This sort produces its flowers two or three times in the year: it is not however regular to any season; but the flowers are mostly produced from March to the beginning of September, when the roots are in a vigorous state of growth. It is best propagated by offsets from the old root-bulbs, which may be taken off every year: the most proper time to part and shift the roots in this kind is in August, as by this means they may take good root before the winter sets in. In doing this, care should be taken not to break off the fibres from their roots. They should be planted out separately in pots of a middling size, and be kept in a moderate degree of warmth in the stove, as by that means they produce their flowers in greater plenty, and the roots make a greater increase, than where they are managed in a more hardy manner.

The fourth sort, or Mexican Lily, is not so hardy as either the above or the Belladonna Lily; it must of course be placed in a stove of much greater warmth; and if the pots are plunged into a hot-bed of tanner's bark, the roots will thrive better, and the flowers be stronger.

It is increased by offsets from the old root, in the same manner as the other sorts, and usually flowers in the beginning of the spring, when it produces a fine appearance in the stove with others of similar growths.

The fifth species, or Purple-flowered Amaryllis, is likewise of the tender kind, and is capable of being propagated in the same manner as the above. It also succeeds the best, and flowers to the greatest advantage and effect, when constantly kept in the stove in a similar degree of temperature with that of the above species.

The sixth kind, or Belladonna Lily, is more hardy. It has been cultivated, according to the editor of Miller's Dictionary, with great success in the following manner:—A border was prepared close to a wall which had a south-west aspect, about six feet in width, in this manner. All the earth to the depth of three feet was removed, and some very rotten dung put in the bottom six inches thick, upon which light garden mould was applied, about twenty inches in depth. After making this level, the roots were placed at six inches distance every way, being then covered over with light sandy earth, to the height of the border; by which means the upper parts of the roots are five or six inches buried. In the winter season the border was covered all over with rotten tanner's bark, to the depth of three inches, in order to prevent the frost from penetrating the ground. And when it proved very severe, some mats or straw were laid over the leaves to protect the plants from being destroyed. In this management the roots have greatly increased, and the plants have constantly flowered every year; some of them having put out two or three stems which grew near three feet in height, producing many flowers in each umbel, which made a fine appearance during the month of October. It is added, that the green leaves come up soon after, and abide all the winter and spring until June, at which time they decay. Soon after this period the roots should therefore be transplanted; for, if they are suffered to stand till July, they will have sent forth new root-fibres, in which state it would greatly injure the roots if they were disturbed. If some of the roots be planted in a warm border close to a south wall, and in a dry soil, they mostly thrive well, especially if they be covered in severe weather; and these roots generally flower much stronger than those which are kept in pots, and multiply faster than under other circumstances.

The seventh species is more tender than the above, as it rarely puts forth offsets from the roots. But as it produces ripe seeds in sufficient quantity, it may be propagated in that way without much difficulty. These should be sown in pots of good mould in the spring season, and immediately afterwards plunged into a bark bed of moderate temperature, a little water being occasionally given till the plants appear, and become of sufficient growth to be transplanted out into separate pots, which should be performed in a careful manner, and a little water given immediately afterwards, the pots being directly placed in the stove, where they are to be constantly kept, as in the above kinds.

The eighth sort is likewise tender. It requires to be treated in the same manner as the Jacobæa Lily. It is found to increase pretty fast by offsets. When properly managed, it usually flowers in the winter season, especially if the pots be placed in a stove of moderate temperature; and as at this period there are but few flowers in the open air, it is more valuable on that account as an ornamental plant for the stove.

The ninth species is still more tender: it must of course be placed, during the winter season, in a stove where there is a moderate share of warmth; but it should not have so much water as the Jacobæa Lily. It may be raised from offsets.

The tenth species, or Guernsey Lily, is supposed to have come originally from Japan; but has been long cultivated in the gardens of Guernsey and Jersey; in both of which it seems to thrive and succeed as well as if it were in its native soil. From those islands its roots are annually sent to the curious in different parts of Europe.

The root-bulbs are generally sent to us in June and July; but the sooner the bulbs are taken out of the ground, after their leaves decay, the better they are; for though the roots, which are taken up when their flower-stems begin to appear, may flower, their flowers are not so large, or their roots so good afterwards, as those which are removed before they have sent out fresh root-fibres.

On obtaining the roots, they should be planted in pots filled with fresh, light, sandy earth, well mixed with a little very rotten dung, to the depth of two or three inches, and then placed in a warm situation; or what is better, in a moderate-stove heat, the earth being refreshed with water occasionally; but they should not have too much, as it would rot their roots, especially before the stems rise.

About the middle of September, the more vigorous roots will begin to show the buds of their flower-stems, which are commonly of a red colour: therefore these pots should be removed into a situation where they may have the full benefit of the sun, and be sheltered from wet, and strong winds; but by no means too near a wall, or under glasses, which would draw them up weak, and render them less beautiful in their blow. At this season they should be gently refreshed with water occasionally, when the weather is warm and dry.

As soon as the flowers begin to open, the pots should be removed from the open air, to prevent the flowers from being injured by too much moisture; but they must not be kept too close, or be placed in situations too warm, as that would occasion their colour to be less lively, and hasten their decay. The flowers of this plant often continue in beauty, when managed in the above manner, a full month: and though they have no scent, from the richness of their colour, they are justly esteemed as flowery ornamental plants.

When the flowers are decayed, the leaves begin to shoot forth in length, and, if sheltered from severe cold, continue growing all the winter season; but they must have as much free air as possible in mild weather, and be covered only in severe rains or frosts; for which purpose a common hot-bed frame is the best, as the glasses may be taken off constantly every day in dry open weather, which will encourage the leaves to grow strong and broad: whereas, when they are placed in a greenhouse, or not exposed to the open air, they are apt to grow long and slender, and have a pale weak aspect, by which the roots become weak, seldom producing good flowers.

The roots should be transplanted every fourth or fifth year, about the latter end of June or beginning of July, into fresh earth: but not oftener removed, as that would retard their flowering.

The offsets may also be taken off, and planted out into different pots; which, in three years time, mostly produce flowers. Consequently, after a person is once stocked with these roots, he may increase them, so as to have a constant supply of blowing roots, without being at the trouble or expense of sending to the above places annually for them; and the roots, thus preserved, will flower stronger than those which are brought from thence, as the inhabitants of those islands are not very curious in cultivating them;—their usual method, according to Miller, being to plant them at a great distance in beds of common earth, where they let them remain for many years; in the course of which they produce such a number of offsets that one single cluster has frequently contained above a hundred roots; by which means those which grow on the inside are so much compressed by the outer roots, that they are perfectly flattened: and from the number of roots growing in each cluster, they are all rendered weak, and unfit to produce such large stems of flowers as those which have grown singly and are of a spherical form. As when a person is possessed of a great number of these roots, it will be troublesome to preserve them in pots, a bed should be prepared in the following manner, in some well sheltered part of the garden. In doing this, a third part of fresh virgin earth, from a pasture ground, which is light, should be provided, with an equal portion of sea-sand, to which should be added rotten dung and sifted lime rubbish, of each an equal quantity. With this earth, when well mixed and incorporated, a bed should be made about two feet thick, raising it about four or five inches above the surface of the ground, where the situation is dry; but where the ground is wet, it should be raised eight or nine inches higher. In this bed, about the beginning of July, as before directed, plant the roots about six or eight inches asunder each way; and in the winter, when the frost begins, cover the bed with a frame, or arch it over, and cover it with mats and straw, to prevent their leaves from being pinched by cold. In the spring, the covering should be entirely removed, and the bed kept constantly clean from weeds during the summer, stirring the surface of the earth now and then; and annually, when the leaves are decayed, sift a little fresh earth over them, to encourage the growth of the roots.

The roots may remain in these beds until they are of sufficient strength to produce flowers, at which time they may be taken up and planted in pots, as before directed, or be suffered to remain in the same beds to flower. These plants do not flower again the succeeding year, as in many other sorts of bulbous-rooted plants; but where the bulbs contain two buds in their centres, as is often the case, they frequently flower twice in the course of about three years; after which the same individual root-bulb does not flower again in several years; but this is performed by the offsets, which are taken from it at different times.

The eleventh species, or Ceylon Lily, is of a tender nature, and must be treated in the same manner as the Mexican Lily. It is not common in the gardens in this country, as it is a plant which increases but slowly by offsets from the roots. It usually flowers in June and July; and sometimes the same plant will produce flowers again in autumn if the pots be plunged into a bed of tanners' bark; but the flowers are seldom of long duration or great beauty.

The twelfth species is also of the tender kind, but may be increased by offsets from the roots, or by the bulbs which succeed the flowers. It should be treated in the same manner as is directed for the Crinums; the proper culture of which may be seen under that head.

All these bulbous-rooted plants, as being both curious and ornamental, deserve to be cultivated; those of the more tender kinds affording much variety in the stove or greenhouse; while the more hardy sorts produce a pleasing effect in the fronts of beds or borders in the garden or pleasure-grounds.

PLATE VII.

1. ASTER AMELLUS.

ITALIAN ASTER.

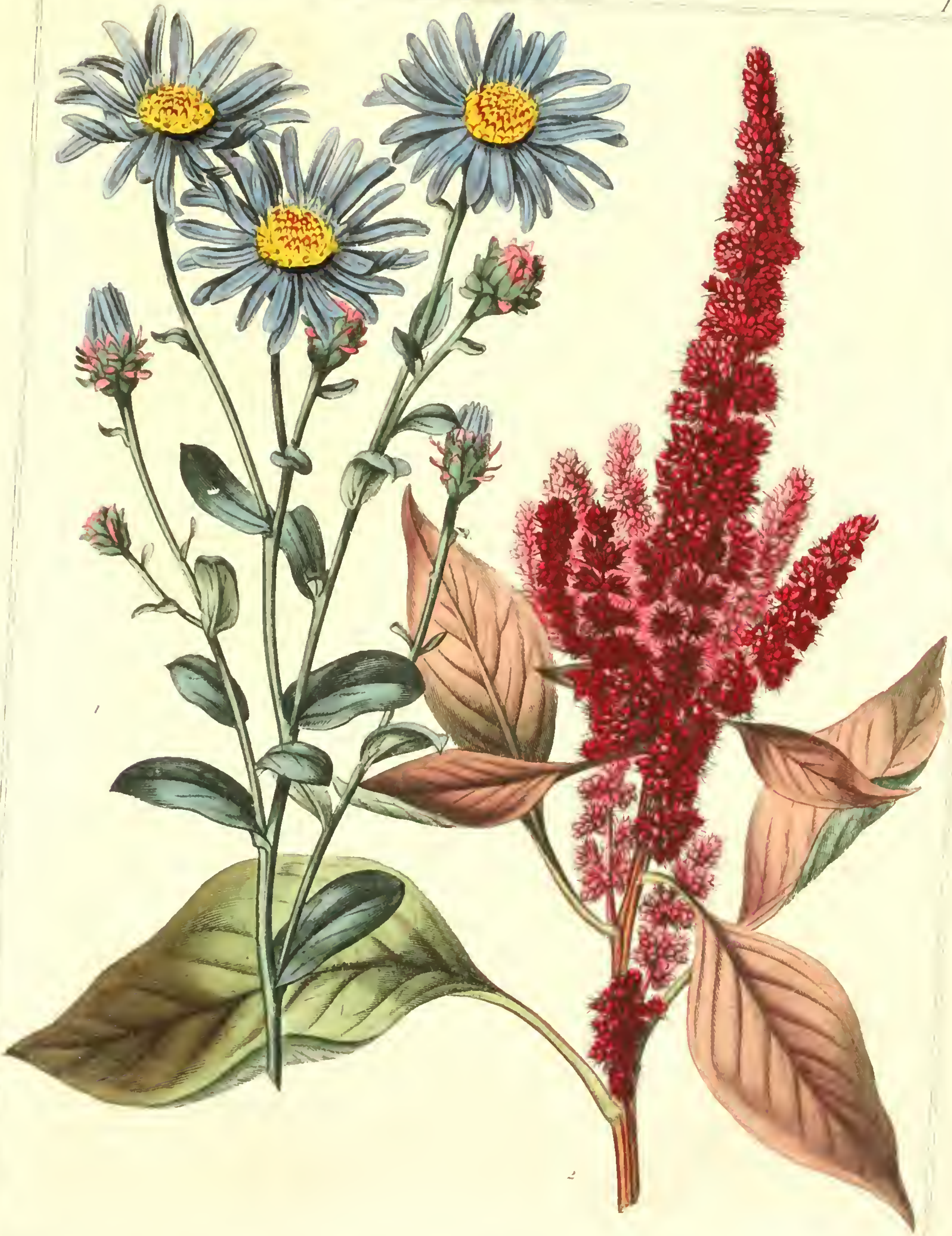
This genus comprehends different fibrous-rooted flowery plants of the annual and perennial herbaceous and shrubby kinds. The Starworts.

It belongs to the class and order *Syngenesia Polygamia Superflua*, and ranks in the natural order of *Compositi Radiati*.

The characters are: that the calyx is common imbricate; the inner scales prominent a little at the end, the lower ones spreading: the corolla compound radiate: corollules hermaphrodite numerous in the disk: the females ligulate, and more than ten in the ray. Proper, of the hermaphrodite, funnel-shaped, with a five-cleft spreading border; of the female ligulate, lanceolate, three-toothed, at length rolling back: the stamina hermaphrodite, five filaments, capillary, and very short: the anther cylindric and tubulous: the pistillum is hermaphrodite: one oblong germ: the style filiform, the length of the stamens: stigma bifid, spreading: females, germ and style the same: stigmas two, oblong, and revolute: no pericarpium: the calyx scarcely changed: the seeds solitary, oblong, and ovate: down capillary: the receptacle is naked and flattish.

The species principally cultivated are, 1. *A. Chinensis*, China Aster, or Chinese Starwort; 2. *A. Tradescanti*, Tradescant's or Virginia Starwort; 3. *A. Amellus*, Amellus, or Italian Starwort; 4. *A. Alpinus*, Alpine or Great Mountain Starwort; 5. *A. Novæ-Angliæ*, New-England Starwort; 6. *A. grandiflorus*, Great Blue Pyramidal Aster, or Catesby's Starwort; 7. *A. puniceus*, Red-stalked American Starwort; 8. *A. undulatus*, Waved Starwort; 9. *A. linifolius*, Flax-leaved Star-

Pl 7



[illegible] Edwards London Publiſhed Aug 1st 1803 by G Kearsley Fleet Street

1 *Aſter amellus*
Italian Aſter

2 *Amaranthus Hypochondriacus*
Princes Feather

wort; 10. *A. tenuifolius*, Fine-leaved Starwort: 11. *A. Ericoides*, Heath-leaved Starwort; 12. *A. dumosus*, Bushy Starwort; 13. *A. concolor*, Single-stalked Starwort; 14. *A. divaricatus*, Divaricate Starwort; 15. *A. Novi-Belgii*, New-Holland Starwort; 16. *A. paniculatus*, Panicled Starwort; 17. *A. fruticosus*, Shrubby Starwort. In this numerous genus there are several other species equally deserving the attention of the cultivator.

The first is an elegant annual plant, rising in height from eighteen inches to two feet; the stem is erect, stiff, furrowed, and as thick as the little finger, putting out long bending branches from top to bottom. The leaves next the ground and at the origin of the branches are large, and resemble those of common *Chenopodium*: those on the branches are much smaller, and the upper ones narrow and very entire: the flowers are the largest and handsomest of any of the species in this genus: the disk yellow, at first flat, then convex; the floscules of the ray are broad and long, scarcely notched at the end.

There are varieties of this plant with single white flowers, single blue flowers, single purple flowers, single red flowers: with double white flowers, double blue flowers, double red flowers, and with variegated blue and white flowers.

The second species has radical leaves three or four inches long, like those of the willow, from green inclining to brown, with small scattered serratures. Among these come out round, smooth, woody, brownish stems, clothed with similar leaves, only shorter; they are elegantly divided into many slender, hard branches, two or three feet high, adorned with abundance of very small white flowers during the months of September and October. According to some, the disk is purple. The ray of the corolla is first white, and afterwards purplish. It is a native of Virginia.

The third sort has the stems growing in large clusters from the root, each of them branching at the top into eight or ten peduncles, each terminated by a single large flower, having blue rays, with a yellow disk. It flowers in August or September, and in mild seasons will often continue till the middle of November. It grows naturally in Italy.

There are varieties with white flowers and with wrinkled leaves.

The fourth species seldom rise more than nine, commonly from four to six inches high, in its native situation, and when transplanted into gardens, from nine to ten, but rarely above sixteen. At the top of each stalk is one large blue flower, somewhat like that of the Italian Starwort. It flowers in June, and is a native of the Alps, &c.

There are varieties with white rays and with blue rays.

The fifth species has many stems, five feet high, brown, terminated by large purple violet flowers, growing in a loose panicle, and expanding in August. The peduncles are so short as scarcely to appear among the flowers. It is a native of New England.

The sixth has many stems, three and even four feet high, stiff, reddish, hairy, and branching pyramidically. The branches have small lanceolate leaves, growing alternate, hairy and rough to the touch, the size of those of common Hyssop, and each terminated by one large blue flower, coming out at the end of October. It is a native of Virginia.

The seventh sort has several strong stems, upwards of two feet high, of a purple colour; but the flowers are on single peduncles, forming a corymb at top, and of a pale blue colour: they appear about the end of September. It is a native of North America; varies in height from eight to three feet, having the stems either dark purple or reddish green.

There is a variety, in which the flowers are purple inclining to red, and surrounded by a few narrow leaves. This is from Philadelphia, and flowers in November.

The eighth species has the leaves broad and heart-shaped at bottom; the stems between two and three feet high, with small side branches, upon which the flowers come out in loose spikes; they are of a pale blue colour, inclining to white. It flowers in August. It is a native of North America.

The ninth has the leaves lanceolate, gradually narrowing to the end: peduncles with very small subulate scales: the stems strong, from two to three feet high, putting out many side branches near half their length, terminated by one blue flower, which appears in August and September.

In the tenth species the stems are five feet high, slender, angular, smooth, but not branching much; the leaves alternate, not very rough: the flowers terminal, solitary, small, and white; the peduncles have very small subulate leaflets scattered over them.

The eleventh has the stems slender, three feet high, with slender side branches most of their length, so as to form a thick bush; they are terminated by single flowers.

The twelfth species has the stems upright, two feet high, full of branches, which are filiform; the stem-leaves being narrow-lanceolate; on the branches linear: the peduncles filiform, striated, one-flowered, with very narrow leaflets on them; the flowers small, with an erect, imbricate, loose calyx; the ray copious, and white; the disk yellow, with fewer flowers.

The thirteenth species rises four feet high; the flowers are pale blue, appearing about Michaelmas. The whole plant is tomentose, especially the leaves and calyxes. The raceme simple, with very short peduncles. It is a native of Virginia.

The fifteenth species has the stem obscurely furrowed, of a pale red, not very erect, but irregularly flexuose, corymbosely branched, the branches divaricate and much divided; the leaves of the same form, sometimes having a single serrature, the edge scabrous, if the finger be drawn toward the base, the surface rough with invisible hairs; the flowers rather solitary, somewhat small, on long, scaly, yellow peduncles; scales of the calyx distant, in five rows; disk of the corolla yellow; ray pale blue, revolute; the height near four feet, having broad leaves at the bottom, which diminish gradually to the top. The flowers appear at the latter end of August. It is a native of Virginia.

The sixteenth rises to the height of four feet, the stems putting out side branches towards the top, which grow erect, forming a loose spike of large blue flowers, expanding about the end of October. It is a native of North America.

The seventeenth species has the stems three feet high, with side woody branches having clusters of narrow leaves like those of the Larch-tree; the flowers are produced from the side of the branches, upon long slender peduncles singly; they are of a pale blue colour, and appear the beginning of March. It is a native of the Cape.

Culture.—The hardy kinds of these plants easily succeed in almost any soil or situation. The first sort, and varieties being annual plants, are propagated by sowing the seeds of the different kinds from the beginning of March to May, on a very moderate hot-bed, just to bring up the plants, the air being admitted as much as possible when the weather is suitable, in order to promote the vigorous growth of the plants; when they are sufficiently strong they should be planted out either into beds of good earth at six inches distance each way, or into the places where they are to remain, in the borders or other parts: the latter is probably the better practice, as they grow more strongly. In the bed method they are usually transplanted after a few weeks, with large balls of earth to their roots, into the situations where they are to flower, the mould being made fine about them. A few of the fine double varieties may also be put in pots. Moist weather is the most suitable for this business, but in other circumstances a little water should be given immediately after the earth has been closed round their roots, as well as in future when it may be necessary.

But when the sowing is not made at an early period, the best practice is to let it be done in the situations where the plants are to grow, which should be rather warm and dry, the mould being made fine by a rake in the spots where they are to be put in, as in this way their growth is less checked than when transplanted.

In either method of sowing, care should be taken that the seed be only covered in a very light manner, and that the mould be made very fine.

The only further culture which they require, is that of keeping the plants perfectly free from weeds, and well supported in the time of flowering.

The whole of the hardy American sorts as well as the Italian species may be readily increased by parting the roots. In the former it is best performed in the autumn, the parted roots being immediately planted out in the places where they are designed to flower.

The latter or Italian sort should have the roots parted and replanted as soon as the flowers begin to decline, as, when the business is deferred till late in the autumn or the spring, the plants neither grow so strong nor flower so completely. The roots in this kind should not be taken up oftener than once in three or four years, where a full display of flowers is the principal object.

This sort has not been so much attended to since the introduction of the American species; but from the plants creeping less by the roots, and requiring less support in the stems, they are equally deserving of regard for the purpose of cultivation.

As this sort is not, however, capable of increasing fast by dividing the roots, it may be readily multiplied by planting cuttings from the young shoots in the later spring months, in situations where the mould is light and fine, being well shaded from the effects of the sun till they are perfectly established in the soil.

The last or shrubby sort must be propagated by setting the cuttings of the young shoots, in pots of light earth, in the spring or summer months, which should be plunged in a hot-bed to promote their striking root. They may then be placed out in the open air during the summer season, but in the autumn and winter they require the protection of a green-house.

The first sort, or *China Asters*, are elegant plants for the purpose of variety, in the clumps and common borders of gardens, or pleasure grounds. In saving the seeds, they should be selected from the best coloured flowers of the most perfect plants, in October, when they are fully ripened, and be gathered when quite dry.

The perennial sorts have likewise a showy appearance, in large clumps and borders, when judiciously distributed among other hardy shrubs and herbaceous plants; some of the species continuing to flower to a late period in the autumnal season.

The shrubby kind affords variety among other green-house plants, both in the summer and winter season.

2. AMARANTHUS HYPOCHONDRIACUS.

PRINCE'S FEATHER.

This genus comprises many plants of the *Prince's Feather* kind. They are universally herbaceous annuals, several of them being highly beautiful and curious. They are likewise sometimes distinguished by the titles of Flower Gentle, Love-lies-bleeding, &c.

It belongs to the class and order *Monœcia Pentandria*, and ranks in the natural order of *Miscellaneæ*.

The characters are: that those species which have male flowers on the same plants with the females have a calyx, which is a five or three-leaved perianthium, upright, coloured, and permanent; the leaflets lanceolate, and acute: no corolla: the stamina have five or three capillary filaments, from upright patulous, of the length of the calyx, the antheræ oblong and versatile. Of those which have female flowers in the same raceme with the males, the calyx is a perianthium the same with the former: no corolla: the pistillum has an ovate germ; the styles three, short and subulate: stigmas simple and permanent: the pericarpium is an ovate capsule, somewhat compressed, as is also the calyx on which it is placed, coloured, and of the same size; three-beaked, one-celled, cut open transversely: the seed is single, globular, compressed, and large.

The species that demand attention for the purpose of cultivation are very numerous, but those most generally cultivated are: 1. *A. melancholicus*, Two-coloured Amaranthus; 2. *A. tricolor*, Three-coloured Amaranthus; 3. *A. sanguineus*, Spreading or Bloody Amaranthus; 4. *A. caudatus*, Pendulous Amaranthus, or Love-lies-bleeding; 5. *A. maximus*, Tree Amaranthus; 6. *A. cruentus*, Various-leaved Amaranthus; 7. *A. hypochondriacus*, Prince's-feather Amaranthus.

The first, or Two-coloured Amaranthus, has the stem upright, half a foot high, dark purple, smooth, streaked, and simple: the leaves are blunt, wrinkled, waved, emarginate, mucronate, with a short white point; the lower ones rufous liver-coloured on the upper surface, bright purple on the lower, with elevated veins: the upper ones green, with red tips: the petioles channelled, bright purple, smooth, edged at top with the decreasing leaf: the lower ones nearly the length of the leaves: the glomerules subsessile, dark purple, on a very short undivided peduncle: the calyxes five-leaved: the leaflets oblong, purple, membranaceous, ending in a dark red point. Professor Martyn observes that this species varies in the colour of the leaves; as in the open air they are of a dirty purple on their upper surface, and in the younger ones green; while in the stove the whole plant is of a fine purple colour. It is, however, easily distinguished in all states by its colour, its leaves, and the lateness of its flowering, which is after all the others are past. It is a native of Guiana and the East Indies. Mr. Miller remarks that it grows to the same height with the Tricolor, and in the manner of its growth greatly resembles it; but that the leaves have only two colours, an obscure purple and a bright crimson, so blended as to set off each other, making a fine appearance when the plants are vigorous.

The second species, or Three-coloured Amaranthus, has the stem a foot and half or two feet in height, obscurely angular, smooth, and upright: the leaves blue with a red point, smooth, and waved: the younger ones red with yellow tips: those in a more mature state coralled at the base, violet in the middle, and green at the end: the old ones green with a violet base: the petioles very long, smooth, green, channelled, and bordered: the glomerules geminate, green, axillary: the calyxes three-leaved: the leaflets oblong, acuminate, membranaceous, with a green nerve. It varies in the colour of the leaves, which are less painted in the open air than in the stove. It has been long cultivated for the beauty of its variegated leaves, in which the colours are elegantly mixed. When the plant is in full vigour these are large, and closely set from the bottom to the top of the stalk: the branches also form a sort of pyramid; so that there is scarcely a more handsome plant when it is in full lustre. It flowers from June to September. And it is a native of Guiana.

The third, or Bloody-leaved Amaranthus, has the stem upright, four feet high, firm, red, round, and streaked: the leaves somewhat convex, or rather so contracted as to have the form of a boat, and pointed; the older ones rather blunt: the upper surface is a mixture of red and green, the lower more or less purple: the petioles are tinged with purple, channelled, roughish; winged at top with the leaf: the racemes very red: the branches smooth, the lower one spreading: the calyxes five-leaved: leaflets oblong, blunt, membranaceous, and red: the bracteæ subdulato-setaceous, red, longer than the flowers, closely surrounding the glomerules.

The fourth species, or Pendulous Amaranthus, has the stem generally two feet high, green, obscurely angular, grooved and streaked, smooth, covered at top with thin, whitish, scattered hairs: the upper part nods on account of the great length of the racemes: the leaves are smooth, bright green, blunt, emarginate, with an incurved transparent point: the petioles much shorter than the leaf: the racemes terminating, elegantly purple, very long, cylindrical, composed of flowers very closely glomerate: the calyxes five-leaved: the leaflets oblong, red, acuminate, membranaceous: the bracteæ oblong, pointed, and scattered.

The fifth, or Tree Amaranthus, rises to the height of seven or eight feet, sending off numerous horizontal branches at every ten or twelve inches: the leaves are rough, green, and luxuriant: the spikes are seldom half the length of those of the other sorts, but are much thicker. It is said to degenerate gradually into the smaller kind. The seeds, which at first are white, also become red. It flowers in August and September. And it is a native of Persia, &c.

In the sixth species, the stem is a foot and a half or two feet in height, grooved, green with red streaks, smooth, and slightly pubescent among the flowers: the leaves are green, spotted with brown above, red beneath, bluntish with a reddish short point: the petioles red, channelled, and smooth: the racemes red and green, with branchlets spreading and nodding a little: the calyx five-leaved: the leaflets oblong, pointed, white-membranaceous, with a red nerve, and a point of the same colour.

It varies of a shining red colour,—with a red stalk with pale leaves,—with a green stalk with variegated leaves, &c. As first cultivated in this climate, according to professor Martyn, the stem was wholly red and smooth; the petioles, ribs, and nerves of the leaves underneath purple; the spikes purple, much spreading, and a little nodding. They were of course very beautiful, and made a gay appearance for the two first years: but afterwards the seeds degenerated, and the plants had little beauty; which is the same with some other species of this genus. It is a native of the East Indies.

In the seventh species, the stem is erect, a foot and a half or two feet in height, smooth, except under the leaves, where it is a little scabrous, reddish, roundish, streaked, and grooved: the leaves are red and green, acute, with elevated veins: the petioles are channelled, and of a reddish colour: the racemes are naked, red, lateral, short, and placed about the stem without order: the calyxes are five-leaved: the leaflets oblong, acute, membranaceous, and red.

It varies with leaves more or less red,—with very red and paler racemes, with a green and red,—with a rough and smooth stalk. It flowers from July to September. And it is a native of Virginia.

Culture.—The propagation in most of these species is not effected without considerable trouble, as they require the aid of artificial heat, in order to bring them forward in the greatest perfection. There are a few, however, that may be raised in the open ground without the assistance of heat applied in the above manner.

The two first, as being the most tender, demand much greater attention and more artificial heat in producing them, than those of the third, fourth, and fifth kinds. And the sixth and seventh species are capable of being raised with still less heat than those of the above sorts, though not in the fullest perfection without a slight degree of it.

In all the different species the business is accomplished by sowing the seeds annually in the early spring months, as about the latter end of March or beginning of April, on beds of good earth, either over heat or in the natural ground, according to the nature of the plants. The earlier the sowing can be performed, the better growth the plants will attain in the summer season.

In raising the two first sorts in the greatest lustre and perfection, the aid of two or three different hot-beds is necessary; which should be covered with frames and glasses, so as to slide with ease and convenience. The first of these hot-beds should be small, and made in the ordinary way, for the purpose of receiving the seed, and which may likewise serve for that of other annuals of the tender kind of similar growth. They should be earthed over the top within the frames, to the depth of five or six inches, with good light dry mould. In this the seed should be sown in small shallow drills, and covered over very lightly with fine sifted mould: the glasses are then to be placed over. In these situations the plants should be suffered to remain till they have attained the height of two or three inches, air being admitted in fine days, and the glasses covered at nights with garden mats. When the plants are in this situation, a second hot-bed is to be prepared in the same manner, into which the young plants are to be pricked out to the distance of about four inches from each other, moderate waterings being occasionally given, and the plants well shaded from the sun till they have taken fresh root. Air should now be admitted more freely when the weather is fine, by raising one end of the glasses, and the night coverings be carefully applied. After the plants have remained in these beds a month or six weeks, and are become tolerably strong in their growth, so as to require more space, the final hot-beds should be made ready. These ought to be of much larger dimensions. When the frames are placed over them, earth to the depth of four or five inches should be laid over; and the plants, after being taken up with balls of earth about their roots, planted in pots of about the twenty-fourth size, water being immediately applied in a sparing manner, and the pots plunged in the earth of the beds, the frames being raised occasionally, as the plants advance in growth. The lights are to be constantly kept on, but air freely admitted by raising the ends daily, and water applied every day or two. Towards the end of June the plants will have risen to nearly their full size; when they may be placed out in the open air, where they are fully seen when the weather is fine and settled, each of them being supported by a handsome stick.

In their after culture, they require to be kept constantly in the pots, and to have water freely applied almost every day when the season is hot.

In order to procure the seed of these kinds in perfection, it is the best method to put a few of the best plants in a deep frame towards the latter end of the summer, that they may, by being more perfectly sheltered by the glasses, be rendered more fully ripe.

In the culture of the third and fourth sorts, as they are more hardy, one or two moderate hot-beds at most will be fully sufficient for raising the plants. In these cases, the seeds should be sown upon a moderate hot-bed towards the end of March: and when the plants come up they should have a considerable share of air admitted to them in mild weather, in order to prevent their drawing up in too weak a state: and when they are become large enough to be transplanted out, another moderate hot-bed should be provided, into which they should be removed, placing them at six inches distance in every direction, care being taken to water them as well as to shade them from the sun in hot weather, until they have taken new roots after which the air should be freely admitted to them at all times when the season is favourable. Their waterings should likewise be frequent, but not given in too great quantity at a time. As the plants advance in growth, and the warmth of the season increases, they should have a greater proportion of air, that by degrees they may be hardened so as to bear the open exposure. In the beginning of June the plants may be taken up with large balls of earth about their roots, and planted some into pots, and others in the borders or other parts of the pleasure-grounds, shading them carefully until they have taken good root: after which they should be frequently watered in hot dry weather, especially those in the pots; as every evening or oftener.

As the Tree Amaranthus does not thrive well in pots, it should be planted in a rich light soil, and be allowed plenty of room, and a full supply of water, as often as may be neccessary. In these circumstances it frequently attains a considerable size, especially in dry seasons.

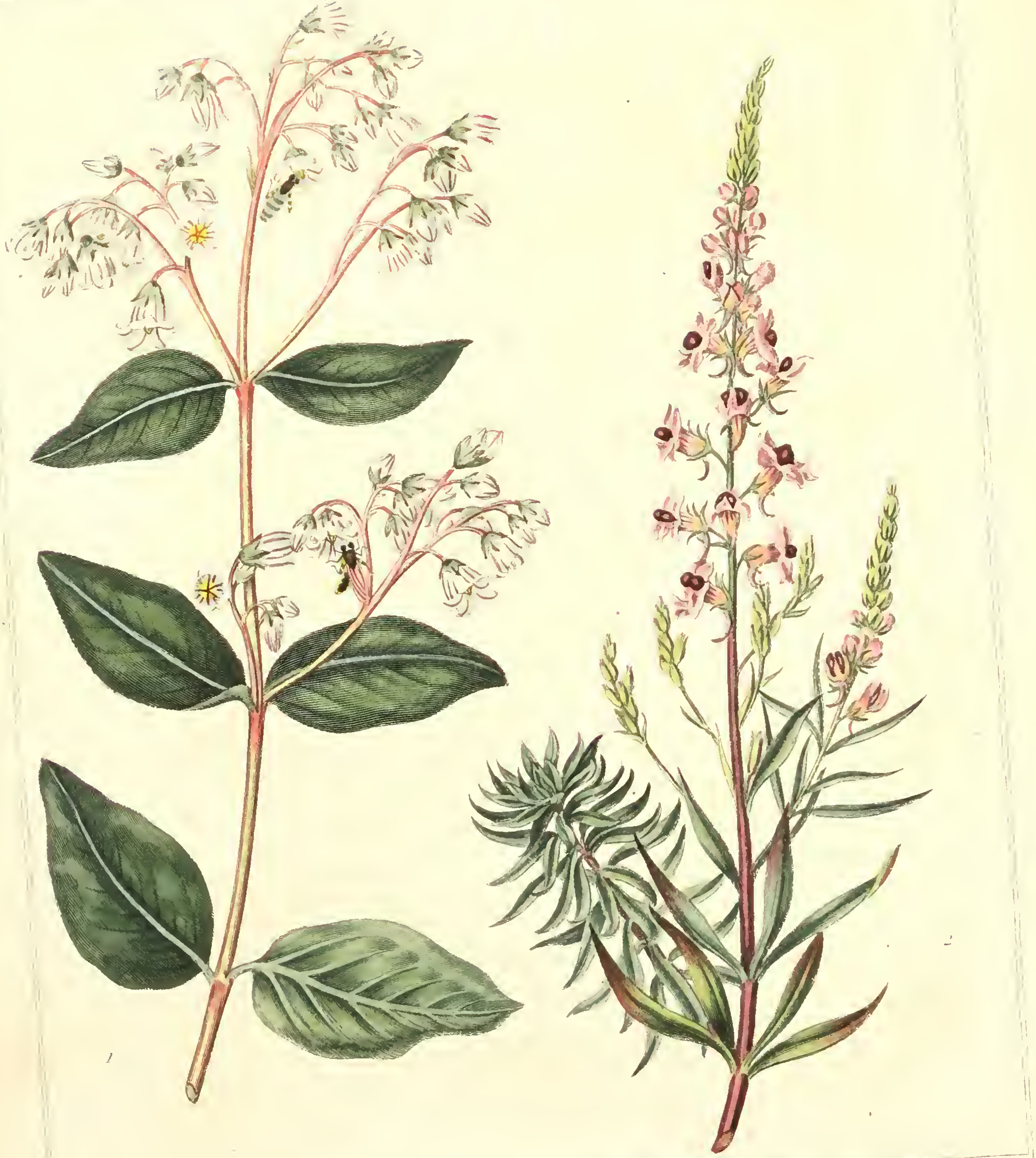
The two last species are capable of being raised upon warm dry borders with tolerable facility; but they neither attain the full growth, afford such large flower-spikes, or appear in such early perfection, as when managed in the manner of the above.

In preserving the seed of the last five sorts, some of the largest and finest spikes should be collected, as they ripen towards the latter end of September, and exposed to the full sun in some dry airy situation until they become perfectly dry, when the seeds may be rubbed out and put by in a dry warm place.

Persons who are curious in raising these annual plants in great perfection, find it convenient to have a glass case erected, with upright sloping glasses on every side, having a pit in the bottom for tan, in which the pots are plunged. If this be raised eight or nine feet to the ridge, and the upright glasses are five feet, there will be room and light enough to raise these as well as many other plants of a similar growth to great perfection: and, by such a contrivance, many of those tender annual plants, which rarely perfect seeds in this climate under other circumstances, may be brought forward so as to ripen their seeds in a perfect manner.

All these plants are highly ornamental, the more tender sorts being mostly distributed in mixture with others of the showy kinds in places immediately about the house; while those that are more hardy afford much ornament and variety in the borders, clumps, and other situations in gardens or pleasure-grounds. They should have rather open exposures, and be distributed towards the fronts, especially those of the low growing kinds.

Pl. 8.



Engrav'd by F. Sansom

London Publish'd [illegible]

Painted by Syd. Edwards

1 Apocynum Androsaemifolium
Fly-catching Dogsbane

2 Antirrhinum purpureum
Purple Toadflax

PLATE VIII.

1. APOCYNUM ANDROSÆMIFOLIUM.

FLY-CATCHING DOG'S-BANE.

This genus contains hardy, herbaceous, perennial and shrubby tender exotics, of the flowering kind.

It belongs to the class and order *Pentandria Digynia*, and ranks in the natural order *Contortæ*.

The characters are: that the calyx is a one-leafed, five-parted, acute, short, and permanent perianthium: the corolla is monopetalous, bell-shaped, and semiquinquefid: the divisions revolute: the nectary consists of five glandular oval capsules surrounding the germ: the stamina consist of very short filaments: the antheræ oblong, erect, acute, bifid at the base, converging: the pistillum consisting of two ovate germs: the styles short: the stigmas roundish, bifid at the top, muricate, glued to the anthers: the pericarpium consists of two long, acuminate, one-valved, one-celled follicles: containing many very small seeds, crowned with long down; the receptacle subulate, very long, rough, and free.

The species are: 1. *A. androsæmifolium*, Tutsan-leaved Dog's-bane; 2. *A. canabinum*, Hemp Dogs-bane: 3. *A. hypericifolium*, St. John's Wort-leaved Dogs-bane; 4. *A. venetum*, Venetian Spear-leaved Dogs-bane; 5. *A. frutescens*, Shrubby Dog-bane; 6. *A. reticulatum*, Net-leaved Climbing Dogs-bane.

The first has the stems about three feet in height, and upright. The leaves are opposite; and these and the stems abound with a milky juice, which flows out when they are broken. The corollas are white, with the nectaries of a purplish cast. But, according to some, they are pale red with a tinge of purple, the flowers being pendulous. It is a native of Virginia, and flowers from July to September. It is perennial.

The second species has the roots perennial, and creeping. The stems are brown, and about two feet in height. The leaves are smooth, in pairs, abounding with a milky juice, like the former. Towards the upper part of the stem, the flowers come out from the wings of the leaves, in small bunches, and are of an herbaceous white colour, and small. It is admitted for the sake of variety. It flowers as above; and is a native of the same place. The stems afford a hempy substance.

In the third the root is likewise perennial, and creeping. The stems annual, upright, round, branched, a foot and half in height, and filled with a white pith. The leaves opposite, sharpish, quite entire, subsessile; the upper ones on the extreme twigs petioled, not revolute. The peduncles umbelled, and terminating. The flowers small, and inodorous. The leaflets of the calyx are oblong, concave, erect, and green. The corolla white, and longer than the calyx. Between the filaments there is a roundish, green gland. The whole plant is smooth, and abounds with a milky juice. It is a native of North America, and flowers in June and July.

The fourth species has the root perennial, and creeping. The stems about two feet high. The leaves opposite and smooth. The flowers grow erect, at the top of the stems in small umbels, and are much larger than in the former sorts. It is a native of the islands in the Adriatic sea, and flowers in July and August.

There are varieties with purple, and with white flowers.

In the fifth the stem is woody, five or six feet in height, dividing into several branches. Leaves opposite, petioled, smooth, quite entire. The peduncles from the axils, opposite; being oppositely branched. The corolla salver-shaped. The flowers are in loose bunches, small, and of a purple colour; but never succeeded by pods in this country. It is a native of the East Indies, &c.

The sixth species has a twining stem, by which it rises to a considerable height. The leaves are dark green, very shining, with a beautiful net of milky veins. It is a native of the East Indies, &c.

Culture.—The four first species are capable of being easily propagated, by dividing their creeping roots either in the early spring months, before they protrude their stems, or in the autumn. The soil most proper for them is that of the light dry kind, as, where there is much moisture, they are apt to be destroyed in the winter season by their roots becoming rotten. In the second species the roots sometimes spread in a troublesome manner.

The fourth species requires a very dry, warm exposure; as it is less hardy than the former. It is best to remove it when necessary in the early spring, when it is about to send forth its stems.

The two last species are best propagated by layers or cuttings from their young shoots, which should be made during the summer season, being dried in the stove some days before they are planted out. They are likewise capable of being raised by seed, when it can be procured, as they seldom afford any in this climate. In either method, pots of light sandy earth should be employed. In the former, the layers or cuttings, after being planted out in them, should be placed in a mild hot-bed; and in the latter, after the seeds are sown, the pots should be plunged into a tan-bed. When the plants are up they must be watered sparingly, and kept constantly in the tan, being changed into larger pots as they advance in growth, great care being taken not to over-pot them, as they thrive best where their roots are a little confined. Under good management, they mostly flower in the second year.

The first kinds are sufficiently hardy to bear the exposure of the open air; but the latter sorts require the constant protection of the stove. The former are well adapted for producing variety in the clumps and borders of walks in pleasure-grounds; and the latter for ornament in the stove, where, from their beautiful ever-green leaves, they have a fine appearance.

2. ANTIRRHINUM PURPUREUM.

PURPLE TOADFLAX.

This genus includes various plants of the herbaceous flowery tribe, commonly known by the titles of *Snap-Dragon*, *Calf's-Snout*, and *Toad-Flax*, or *Frog's-Mouth*.

It belongs to the class and order *Didynamia Angiospermia*, and ranks in the natural order of *Personatæ*.

The characters are: that the calyx is a five-parted permanent perianthium: the divisions oblong, the two lowermost gaping: the corolla is monopetalous and ringent: the tube oblong, swelling, and opening above with a mouth having two lips, the upper one two-parted and reflex on each side, the under one trifid and obtuse: the palate convex, usually closed by a prominency between the lips, produced from the under lip, the throat being concave beneath, having a prominent nectarium at the base of the corolla, produced downwards and prominent: the stamina consist of two short and two long filaments, enclosed under the upper lip; the antheræ converging: the pistillum a roundish germ, style simple, of the length and in the situation of the stamens: the stigma obtuse: the pericarpium a roundish capsule, obtuse, two-celled, of different form and aperture in the different species: the seeds numerous: the receptacles uniform, solitary, and affixed to the partition.

The species of most importance for cultivation are: 1. *A. linaria*, Common Yellow Toad-Flax; 2. *A. cymbalaria*, Ivy-leaved Toad-Flax; 3. *A. triphyllum*, Three-leaved Toad-Flax; 4. *A. purpureum*, Purple Toad-Flax; 5. *A. monspessulanum*, Montpellier Toad-Flax; 6. *A. sparteum*, Branching Toad-Flax; 7. *A. triste*, Dark-flowered Toad-Flax; 8. *A. pelisserianum*, Violet-coloured Toad-Flax; 9. *A. multicaule*, Many-stalked Toad-Flax; 10. *A. alpinum*, Alpine Toad-Flax; 11. *A. dalmaticum*, Dalmatian Shrubby Toad-Flax; 12. *A. ge-*

nistæfolium, Broom-leaved Toad-Flax; 13. *A. majus*, Great Toad-Flax, or Snap-Dragon; 14. *A. bellidifolium*, Daisy-leaved Toad-Flax, or Snap-Dragon.

The first species has a hard woody creeping perennial root: the stems several, from one to two feet in height, full of leaves, round and smooth: the leaves pointed, smooth, and of a blucish colour, growing without order: the flowers yellow with the palate orange, villose, in a thick terminal spike: the nectary long and awl-shaped: the upper segment of the calyx a little longer than the rest: the two lower ones gaping, widest: the capsule cylindric, splitting at the top into several equal divisions. It grows by road-sides, and flowers from June to August. By culture the flowers become larger and finer.

The second species has a fibrous perennial root, inserting itself so into the crevices of walls and rocks as scarcely to be eradicated: the stalks are numerous, growing in a tuft, creeping at bottom, branched, round, purplish and stringy: the leaves roundish, shining, somewhat fleshy, some opposite, others alternate, frequently purplish: lobes of the lower ones blunt, upper acute, the smallest only three-lobed: the petioles long and grooved above: the peduncles from the axils, one-flowered, round, a little longer than the petioles: the tube of the corolla short: the upper lip purple, with two deeper veins: segments of the lower whitish: the palate yellow: the mouth or entrance into the tube villous and saffron-coloured: the nectary purple and conical, the length of the calyx: the germ purple: the capsule wrinkled, opening at top into several segments: the seeds are black, roundish and wrinkled like the nut of the walnut. The whole plant is smooth, but has a disagreeable smell.

There is a variety with a white flower.

The third is an annual plant, which rises with an upright branching stalk near a foot and half high, with oval, smooth, gray leaves, placed often by threes, and sometimes by pairs, opposite at the joints; the flowers grow in short spikes at the top of the stalks; they are shaped like those of the common sort, but have not such long tubes; they are yellow, with saffron-coloured chaps. It flowers in July and August, and the seeds ripen in autumn. It grows naturally in Sicily.

There are varieties of this with a purple standard and spur; and with purple flowers.

In the fourth species the root is perennial: the stem two feet high, round and smooth: the leaves smooth, and marked with three nerves underneath, spreading, alternate: the lower verticillate: the racemes are terminal, simple, erect, long, with pedicels longer than the flower: the calyx minute: the corolla all purple, paler without, with the palate pubescent at the edge; spur the length of the corolla, bending outwards: the capsule subglobular: the seeds three-sided-angular, or a little compressed: the angles acute, margined, smooth, and vermicularly wrinkled between them; the colour of smoke. It is a native of Italy.

The fifth has a perennial root, from which arise many branching stalks near two feet high, with very narrow leaves growing in clusters, and of a grayish colour. The flowers are produced in loose spikes at the end of the branches; they are of a pale blue, and have a sweet smell. These appear in June; and there is often a succession of flowers on the plants till winter: the bractes are lanceolate, one at the base of each peduncle: the corolla pale blue, with darker spots; spur nearly as long as the body of the corolla: the calyx very small, and the segments acute.

In the sixth species the stem is a foot high, quite smooth, panicled, erect, but not very stiff, with wand-like branches. Primordial leaves, before the stalk shoots up, ternate, oblong; the rest alternate, awl-shaped, channelled, smooth, fleshy, and straight; the flowers are racemose: the calyxes smooth, or rather somewhat villose: the corollas yellow: the palate smooth, with a tinge of red in the retuse elevation of it.

The seventh has several smooth stems, eight or nine inches long, usually decumbent: the leaves rather fleshy, convex and glaucous: the calyx and bractes only pubescent: the corolla very dark purple, with the spur streaked: it often varies of an ash, yellow, or lighter purple. By Curtis it is said to be of a fine rich brown inclining to purple: the capsule is shaped like the human skull. It is a native of Spain, and flowers during most of the summer months.

The eighth species has an annual root: the stem six or eight inches high, erect, round, very smooth, branching a little: the leaves very remote, rather fleshy and smooth: the radical or lower ones three or four together: the flowers in a head or corymb, and small: the calyx erect, not close, but with distant divisions: the corolla purple, with a white palate marked with obscure veins, purple: the upper lip longest; spur straight, as long or longer than the corolla. It is a native of France, &c.

The ninth is an annual plant, from whose root proceed many stalks, which are lax and rushy, very slender, and about a foot in height; on the lower part they have five very narrow, linear, obtuse leaves at each joint; but upwards they are sometimes by pairs, and sometimes single: the stalks are divided into many small branches, with little yellow flowers coming out singly at a distance from each other, which appear in July, and ripen their seeds in August. It is a native of Sicily.

There are two varieties of this plant, one with a deep yellow-coloured flower, the other with a sulphur-coloured flower.

In the tenth species the root is perennial: the stems slender, branching at bottom, growing thicker towards the top, from two to seven inches long, ascending, round and smooth: the leaves quite entire, without veins, and thick: the lowest smaller, and in fours: the upper ones solitary, or two opposite, or sometimes three: the flowers in a close raceme at the ends of the stalks; they are very elegant, of a fine violet purple colour, with a rich gold colour in the middle, and are in blow most part of the summer. It is a native of the Alps.

The eleventh species rises with a strong woody stalk, three feet high, having smooth, spear-shaped leaves, placed alternately, and sitting close to the stalk. The flowers are produced at the end of the branches in short loose spikes; these are of a deep yellow colour, much larger than those of the common sort, and stand upon short foot-stalks. It flowers in July, but the seeds rarely ripen in this climate, which makes the plants scarce. It is a native of Crete, &c.

The twelfth is a biennal or perennial plant, which rises with an upright, branching stalk from three to four feet high, having spear-shaped, alternate leaves, ending in acute points, and of a grayish colour. The flowers are produced at the end of the branches, in loose panicles; they are of a bright yellow colour. It is a native of Siberia, &c.

In the thirteenth the root is biennial: the stem from a foot or eighteen inches to two and even three feet in height, upright, round, solid, smooth at bottom, but pubescent higher up: the leaves are lanceolate or ovate, blunt, the lower mostly opposite, the upper inclined to be alternate: the flowers in a spike, pointing one way, large and handsome, on a very short, hairy peduncle, supported by a short, concave, acuminate bracte: the nectary obtuse, scarcely prominent: the capsule obliquely opening at top, unequal at the base; vulgarly compared in shape to a calf's head: the tops of the stalks and the calyxes are usually viscid. It is a native of the south of Europe, and flowers in June and July.

There are a great many varieties, as with red, yellow, purple and white flowers, red with white or yellow mouths, white and red, yellow and red, yellow and white, purple and white, purple with yellow mouths, with scarlet dotted with gold colour, with double flowers, and variegated leaves.

The fourteenth species is a biennial, or at most a triennial plant, which frequently perishes soon after the seeds are ripened. The stem is erect, two feet high, branching, terminated with a long thin spike: the stem-leaves small and three-parted, sometimes five-parted, very different from the broad, serrate, radical ones: the bractes one-flowered, linear, long, sometimes trifid: the flowers very small, on short peduncles, in a very long raceme, containing frequently an hundred flowers: the segments of the calyx almost capillary: the corolla blue, nodding, quinquefid, two of the divisions erect, three nodding; throat open without any palate; spur short, bent back; the anthers reflex, dark blue. It is a native of Spain, &c.

Culture.—In most of the plants of the Toad-Flax kind the propagation may be readily effected by sowing the seeds either in the autumn or the spring, in situations where they are to remain, and where the soil is light and not enriched by manure. The seeds of the third, sixth, and eleventh species are best put into the ground in the spring; and those of the fourth, fifth, eighth, and ninth in the autumn. The first species may be increased by the trailing stalks which put out roots from the joints. It will succeed in any soil or situation. The fourth and fifth species may likewise be propagated by parting the roots. The seventh and tenth may be raised by cuttings, which should be planted out in a shady situation in the summer season, and when they have taken good root they may be removed into pots of light earth of the poorer sort. The striped varieties must also be propagated by cuttings, in the same way as the above.

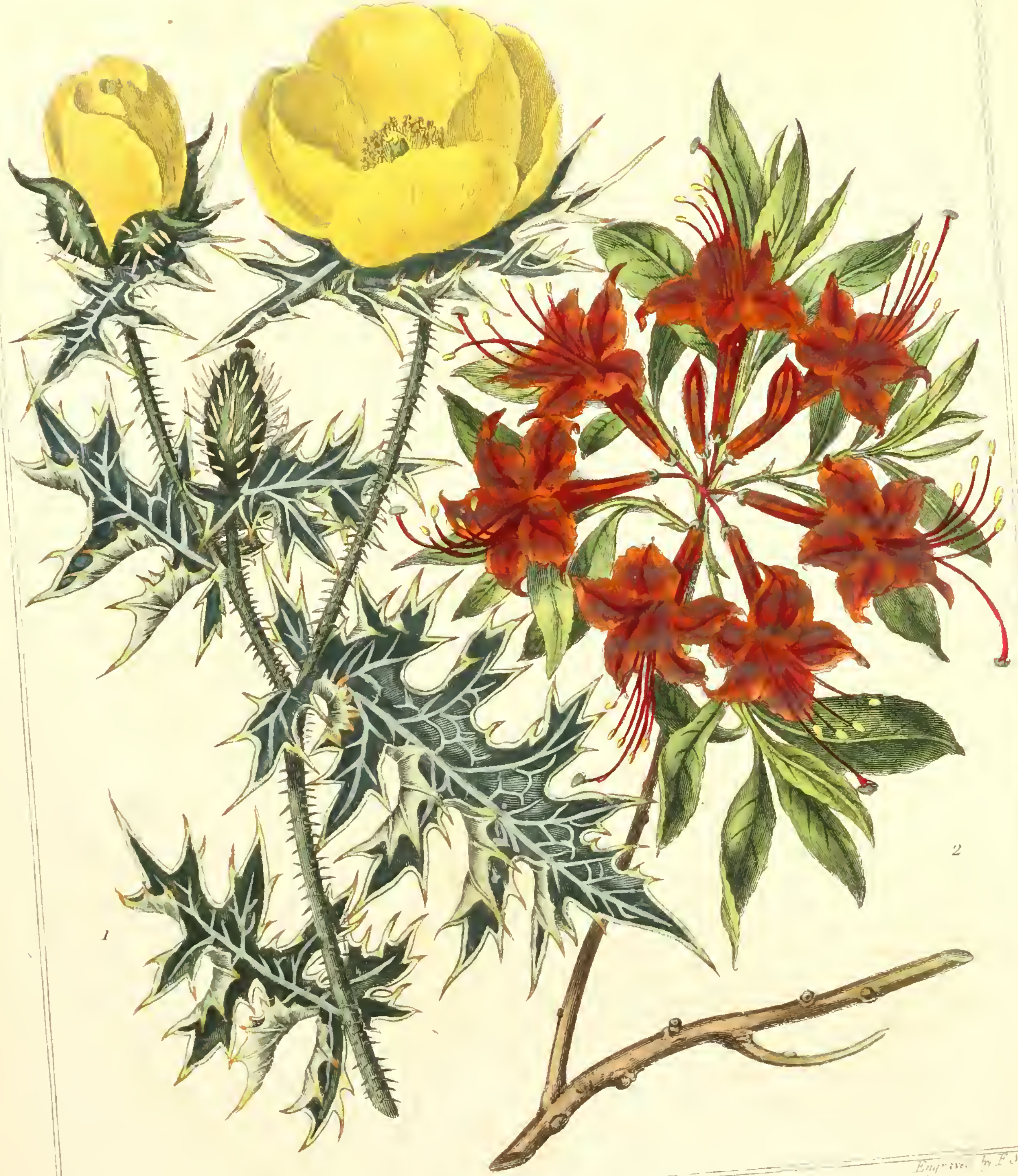
The plants raised by cuttings should be sheltered during the winter months, fresh air being admitted freely in mild weather. When protected under a hot-bed frame they succeed better than in the greenhouse, as in the latter situation the plants are apt to be drawn up weak.

The plants raised from seed should be removed into pots of light sandy earth, especially in the eleventh species, till they have taken fresh root, being then exposed in assemblage with other hardy exotic plants till October, when they should be placed in a hot-bed frame to be protected from frost. Some may likewise be planted out in warm situations on rubbish or poor sandy soils, where they will frequently stand in mild winters, as in such situations they resist cold the best.

In the Snap dragon kind the propagation may be accomplished either by the seed or by cuttings. When the former method is practised, the seeds in the thirteenth species should be sown in the spring, as in April or May, in the places where they are to remain, where they will produce flowers in the following spring. But in the fourteenth species the seed should be sown in the autumn on borders or other places, where they are to remain. They must be thinned in the following spring, and they mostly flower in the second. If the former of these sorts be designed to grow on rocky barren situations, the seeds should be sown in March, where they are to remain.

Where the latter mode is employed, the cuttings should be made in the summer season, and planted out in a proper shade till they have stricken root.

These are most of them plants adapted to the purpose of ornament, either in rocky barren situations, or in the borders, clumps or other parts of gardens and pleasure-grounds. The first species is particularly suited for covering rock work, and the thirteenth also grows well in such situations, and it, as well as most of the other species, is adapted for the purpose of affording variety in the larger borders or other compartments. They last the longest in dry poor rocky situations.



Engraved by F Sanson

London Publiſhed Aug 1st 1805 by G Kearsley Fleet Street

Painted by Syd Edwards

1 Argemone mexicana
Mexican Argemone

2 Azalea nudiflora coccinea
Scarlet Azalea

PLATE IX.

1. ARGEMONE MEXICANA.

MEXICAN ARGEMONE.

This genus comprehends a plant of the annual kind: The Prickly Poppy.

It belongs to the class and order *Polyandria Monogynia*, and ranks in the natural order of *Rhœadeæ*.

The characters of which are: that the calyx is a three-leaved, roundish perianth: the leaflets roundish with a point, concave and caducous: the corolla consists of six roundish petals, from erect spreading, larger than the calyx: the stamina consist of numerous filiform filaments, the length of the calyx: the anthers are oblong and erect: the pistillum is an ovate, five-angled germ: there is no style: the stigma thickish, obtuse, reflex, quinquefid and permanent: the pericarpium is an ovate, five-angled, one-celled, half-valved capsule: the seeds numerous and very small: the receptacles linear, fastened to the angles of the pericarpium, but not gaping: the half-valved capsule distinguishes this from the *Papaver*.

There is only one species cultivated in the garden: *A. Mexicana*.

It is an annual plant, rising to the height of two or three feet, with stems armed with prickles: leaves sinuate or jagged, soft, shining, stem-clasping, the points of the jags ending in sharp yellow spines: on the upper side there are milky veins, as in Our Lady's Thistle; on the under, small prickles along the midrib and veins: the flowers are solitary at the ends of the stem and branches: the corolla is yellow, with from four to six petals: the calyx consists of two or three prickly leaves: the stigma is capitate, small, with five notches: the capsule superior, having five or six ribs from tob to bottom, and between the ribs armed with bristle-shaped spines; at the top is the flatted stigma: the seeds are very numerous, round, black, rough, with a compressed scar on one side: the valves of the capsule vary in number, as well as the petals, from four to six. It is a native of Mexico, and flowers in July and August.

Culture.—As this is an annual plant, it may be easily raised by sowing the seeds thinly in spots of light earth in the places where the plants are to remain. As the plants shed their seeds, they mostly continue for several years after they have been once introduced.

2. AZALIA NUDIFLORA COCCINEA.

SCARLET AZALIA.

This genus contains plants of the hardy deciduous flowering shrubby kinds. The Upright American Honeysuckle.

It belongs to the class and order *Pentandria Monogynia*, and ranks in the natural order of *Bicornes*.

The characters of which are: that the calyx is a five-parted, acute, erect, small, coloured, permanent perianthium: the corolla is monopetalous, bell-shaped, semiquinquefid; the sides of the divisions bent in: the stamina consist of five filiform filaments, inserted into the receptacle and free: the anthers are simple: the pistillum is a roundish germ: the style filiform, the length of the corolla, and permanent: the stigma is obtuse: the pericarpium is a roundish capsule, five-celled and five-valved: the seeds many and roundish.

The species chiefly cultivated are: 1. *A. nudiflora*, Naked-flowered Azalia; 2. *A. viscosa*, Viscid-flowered Azalia.

The first in its native situation often rises to the height of fifteen feet, but here is never more than half that height. It sends out several stems from the root. The leaves are oblong, smooth, alternate and petioled. The peduncles are axillary, long and naked, supporting a cluster of red flowers, which are tubulous, swelling at their base like those of the hyacinth, and contracted at their neck; they are divided at the top into five equal segments, which spread open. The five stamens and style are much longer than the petals, and stand erect. It is a native of Virginia.

There are varieties of this plant with scarlet flowers; with pale red flowers; with curly white flowers; with red and white flowers; and with variegated flowers.

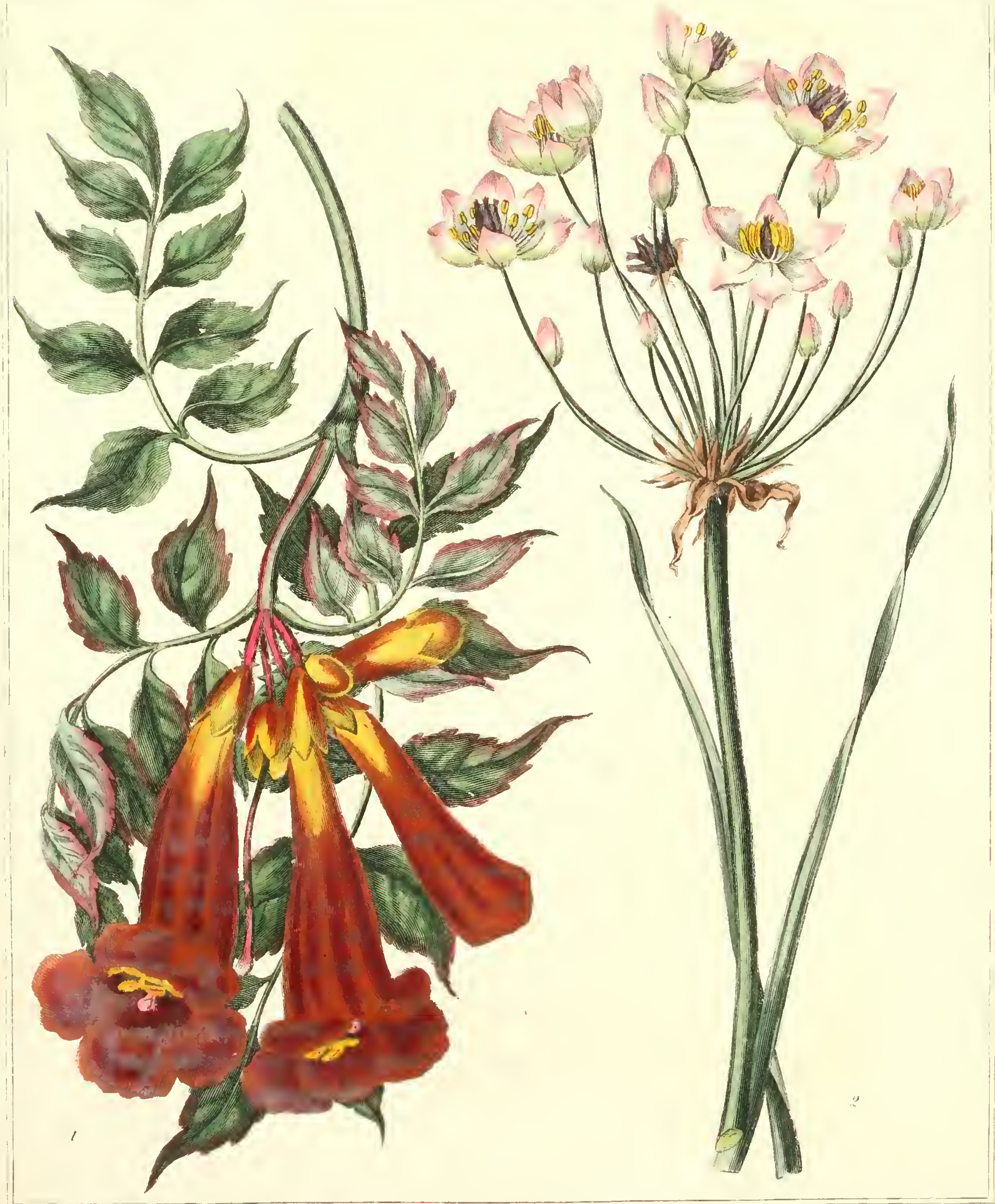
The second is a low shrub, rising with several slender stems near four feet high: the leaves come out in clusters at the ends of the shoots without order: they are spear-shaped, and narrow at their base; their edges are set with very short teeth, which are rough: the flowers come forth in clusters between the leaves at the extremities of the branches; they are white, with a mixture of dirty yellow on the outside: the tube is an inch long, and at the top they are pretty deeply cut into five segments; the two upper are reflex, the two side ones bent inward, and the lower one is turned downward: the stamens are a little longer than the petals, and support oblong saffron-coloured anthers. The style is much longer than the stamens, and is crowned by an obtuse stigma. These flowers have much the appearance of those of Honey-suckle, and are as agreeably scented; more so than the foregoing sort. They appear the middle of July, but are not succeeded by seeds in this climate. It is a native of North America.

This plant has varieties, with white striped flowers; with narrow petalled flowers; and with clustered flowers.

Culture.—These plants may be raised without much difficulty, in rather moist soils where the situation is shady. As they never produce seeds in this climate, they must be increased by layers from the young shoots, or by offsets from the roots. The best season for either of these methods is the early part of the autumn, when they should be set out where they are to grow, or be planted in rows in the nursery manner. It is useful to protect the roots during the winter, by covering the ground about them with old tan, or other similar substances.

Where the seeds can be procured, plants may be raised by sowing them either in pots or on warm borders; in the former method, forcing their growth by plunging them in mild hot-beds.

These shrubby plants are suited for affording variety in shrubberies and other places, both on account of their fragrant smell and the beauty of their flowers.



Painted by Syd Edwards London Published Jan 1 1800 by G Kearsley Fleet Street Engraved by F Sansom

1 *Bignonia radicans*
Ash leaved Trumpet flower

2 *Butomus umbellatus*
Flowering Rush

PLATE X.

1. BIGNONIA RADICANS.

ASH-LEAVED TRUMPET FLOWER.

This genus comprehends several plants of the shrubby and tree exotic kinds. The Trumpet Flower, or Scarlet Jasmine.

It belongs to the class and order *Didynamia Angiospermia*, and ranks in the natural order of *Personatæ*.

The characters are: that the calyx is a one-leafed, erect, cup-form, five-cleft perianthium: the corolla monopetalous, campanulate; tube very small, the length of the calyx: throat very long, ventricose beneath, oblong-campanulate: border five-parted, the two upper divisions reflex, lower patulous: the stamina consist of four subulate filaments, shorter than the corolla; two longer than the other two: the anthers reflex, oblong, as it were double: the pistillum is an oblong germ, the style filiform, having the situation and form of the stamens: the stigma is capitate: the pericarpium is a two-celled, two-valved silique: partition membranaceous, parallel and thickened at the sutures: the seeds are very many, imbricate, compressed, and membrane-winged on both sides.

The species chiefly cultivated for ornamental purposes are: 1. *B. catalpa*, Catalpa and Tree Bignonia. 2. *B. sempervirens*, Evergreen Carolina Bignonia, or Yellow Jasmine. 3. *B. unguis*, Cut-claw Bignonia. 4. *B. radicans*, Rooting Ash-leaved Scarlet Bignonia.

The first is a deciduous tree, rising with an upright stem, covered with a smooth brown bark, to the height of thirty or forty feet in its native situation, but not nearly so high in this climate: it sends out many strong lateral branches, having very large, heart-shaped, or ovate, leaves on them, placed opposite at every joint. The flowers are produced in large branching panicles towards the end of the branches; they are of a dirty white colour, with a few purple spots, and faint stripes of yellow on their inside: the tube of the corolla is much shorter, and the upper part more spreading than in the fourth sort: the segments also are deeper cut, and waved on their edges. The flowers are succeeded by longer taper pods in its native situation; but these have not as yet been produced in this climate. It is a native of South Carolina, and flowers in August.

The second species rises with slender stalks, which twist themselves round the neighbouring plants, and mount to a considerable height: the leaves come out single and opposite to each other at every joint: they remain green through the year. The flowers come out from the wings of the leaves at every joint, sometimes but two, at other times four at each joint; these stand erect, are trumpet-shaped, yellow, and have a very sweet scent; and, in the countries where they grow naturally, are succeeded by short taper pods filled with small winged seeds. It is a native of South Carolina.

The third rises with slender stems which require support. The leaves are small, ovate, entire, and placed opposite at every joint; at the same places come out the tendrils, by which the plants fasten themselves to whatever grows near them: the flowers are axillary, and shaped like those of the Foxglove. They are not succeeded by pods in this climate. It is a native of the West-Indies.

The fourth species has rough stems, which send out many trailing branches, putting out roots at their joints, and thereby fastening themselves to the trees in their natural places of growth, and climbing to a great height: when it is planted against walls, it strikes into the mortar of the joints so strongly as to support the branches, and will rise to the height of forty or fifty feet. The leaves are opposite at every joint, composed of four pairs of leaflets, terminated by an odd one; they are serrate, and end in a long sharp point. The flowers are produced at the ends of the shoots of the same year, in large bunches; they have long swelling tubes, shaped somewhat like a trumpet, whence the plant has the appellation of Trumpet Flower. The corolla is of an orange colour, and opens at the beginning of August. It is a native of Carolina.

There is a variety of this with small flowers.

Several other species of this genus are equally deserving of cultivation.

Culture.—These plants are capable of being raised either from seeds, layers, or cuttings of the stronger shoots, according to the species.

In the first, the best methods are those of sowing the seeds, obtained from abroad, in pots of light fresh earth, in the early spring season, plunging them immediately in a moderate hot-bed of tan or dung: when the young plants appear, they should be placed in warm sheltered exposures till the autumn, when they require the protection of frames and glasses, or of a good green-house, free air being admitted when the weather will permit. After the plants have attained sufficient growth in these situations, they may be removed from the pots, planted out in warm situations where they are to remain, or in the nursery, protection being given them in the winter season when it proves severe.

Some however prefer raising plants of this sort by setting the cuttings of the young shoots in the early spring, in pots of the same earth, plunging them in moderate hot-beds till they have stricken full root, water and shade being occasionally given them, gradually as the summer advances enuring them to the full air, in order to harden them. On the approach of autumn, they should be taken under shelter of some sort when the weather is severe. In the spring following they may, if necessary, be planted out where they are to stand, or be put in the nursery ground.

These plants succeed best in such soils as are rich, and rather inclined to moisture.

All the other species may likewise be raised from seeds, by being managed in the same manner as the preceding one; but a more ready method is by layers, made from the young shoots in the autumn or spring seasons: which may be taken off and planted out, either where they are to remain, or in the nursery-ground, after they have had a twelvemonth's growth. They are also capable of being increased by cuttings of the more strong shoots, planted out and managed in the same way as in the first sort.

In all the kinds, the plants raised from seeds are much longer before they produce flowers, than when they are propagated by layers or cuttings of the flowering plants.

The chief culture, after the plants are fully established, is that of cutting out all the small weak shoots of the preceding year, in the winter season, and shortening the stronger ones to the length of about two feet, in order to induce flowering shoots to be sent out for the ensuing summer. These plants are all of long duration, when carefully managed.

The first species, though late in putting out its leaves and flowers, is a highly ornamental shrubby tree, that may be introduced with propriety and great effect in the back but more conspicuous parts of large borders, or the middle of large clumps and other planted parts of shrubberies and grounds. When in full foliage it has a fine appearance, affording an agreeable diversity in such situations.

It is likewise well suited for planting out singly on the more spacious lawns or other open parts, where the situations are not too much exposed, as when permitted to take its natural growth it produces a good effect.

The second species is more tender, requiring the protection of mats or other coverings in winter, in the time of frosts, and the application of tan or litter about the roots. It succeeds best, and has the finest appearance, when planted against a warm wall, where it has room to climb and spread.

The third and fourth species are much more hardy, though they should have some protection when frosts occur in the winter. They are very ornamental when planted against high walls or buildings, especially the latter, as it will fix on the crevices, and extend itself over a vast surface. If trained up against high trees, it also produces a fine appearance when in flower.

2. BUTOMUS UMBELLATUS.

FLOWERING RUSH.

This genus contains a plant of the flowery perennial aquatic kind. The Flowering Rush, or Water Gladiole.

It belongs to the class and order *Enneandria Hexagynia*, and ranks in the natural order of *Tripetaloideæ.*

The characters are: that the calyx is a simple, three-leaved, short involucre: the corolla consists of six petals, roundish, concave, withering; three outer alternate, smaller, more acute: the stamina consist of nine subulate filaments: the anthers are bilamellate: the pistillum has six germs, oblong, acuminate, ending in styles: the stigmas are simple: the pericarpium consists of six capsules, oblong, gradually attenuated, erect, one-valved, gaping on the inside: the seeds are very many, oblong-cylindric, obtuse at both ends, fixed to the wall of the capsules.

There is only one species: *B. umbellatus*, Umbellated Butomus, or Flowering Rush.

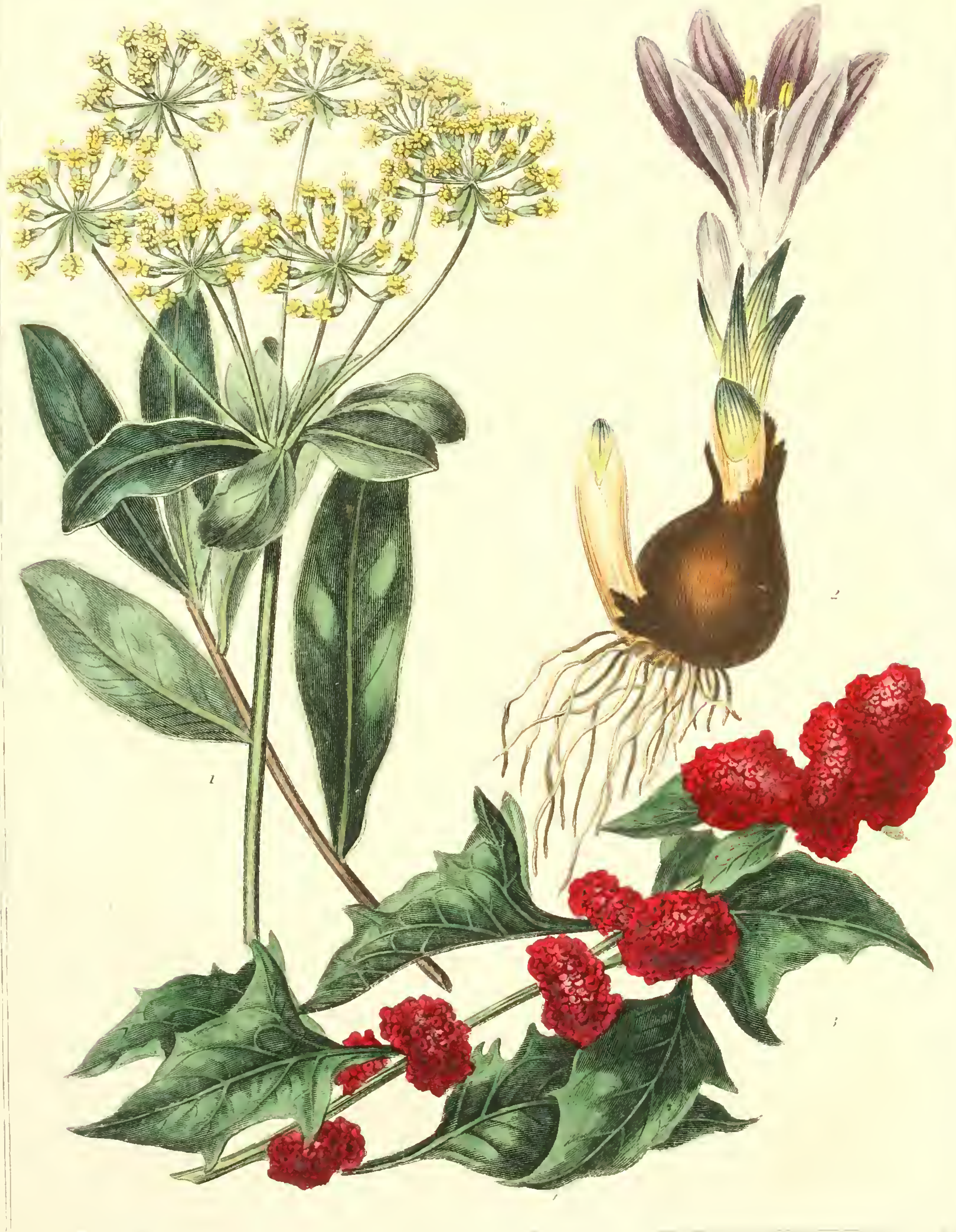
It has a thick, oblong, fibry, perennial root: the leaves are ensiform, long, triangular, smooth, quite entire, spongy, at bottom sheathing, at top flat and twisted: the scape upright, round, smooth, from one to three or five and six feet high: the flowers to thirty, each on a single round peduncle, from an inch to about a finger's length, forming an upright umbel, surrounded at bottom by an involucre of three withering membranous sheaths; besides a smaller stipule to each peduncle: corolla handsome, near an inch in breadth; commonly of a bright or pale flesh-colour, purple or rose-colour. It is a native of most parts of Europe, and Flowers in June and July.

There are varieties with white flowers; with red flowers; with deep purple flowers.

Culture.—The propagation in this plant is effected either by seed or the roots. In the first mode the seed may be sown thick, in any watery or boggy place, in the autumn, and left to nature. In the second method the roots should be removed any time after flowering, and such as admit of it, divided, planting them at once in the places allotted them, where they flower annually for a great length of time.

These plants are very ornamental on the sides of waters, or in soft boggy situations, in pleasure grounds.

Pl 11



Painted by Syd Edwards

London Publiſhed July 1.1805 by G Kearsley Fleet Street

1 Bupleurum fruticosum
Shrubby Hares ear

2 Bulbocodium vernum
Spring Bulbocodium

3 Blitum capitatum
Berry headed Strawberry Blit

PLATE XI.

1. BUPLEURUM FRUTICOSUM.

SHRUBBY HARE'S-EAR.

This genus comprises plants of the evergreen shrubby kind. Hare's Ear, or Æthiopian Hartwort.

It belongs to the class and order *Pentandria Digynia*, and ranks in the natural order of *Umbellatæ*.

The characters are: that the calyx is an universal umbel, with fewer than ten rays; partial with scarcely ten rays, erect-expanding: involucre universal many-leaved; partial five-leaved, larger: leaflets expanding, ovate, acute: the perianthium proper obscure: the corolla is universal uniform: floscules all fertile: proper, of five, involuted, entire, very short petals: the stamina consist of five simple filaments: the anthers roundish: the pistillum is an inferior germ: the styles two, reflected, and small: the stigmas very small: there is no pericarpium: fruit roundish, compressed, striated, splitting in two: the seeds two, ovate-oblong, convex and striated on one side, flat on the other.

The species for the purpose of ornamental culture are: 1. *B. fruticosum*, Shrubby Hare's Ear, or Æthiopian Hartwort; 2. *B. difforme*, Various-leaved Hare's Ear; 3. *B. frutescens*, Grass-leaved Shrubby Hare's Ear.

The first is an evergreen shrub rising to the height of five or six feet, and dividing into many branches so as to form a large regular bush. The stem is covered with a purplish bark; the branches are well furnished with oblong, smooth, shining, stiff leaves, of a sea-green colour, placed alternately, four inches long, and one broad in the middle; at the ends of these the flowers are produced in umbels:

they are yellow at first, but fade away to a brown: they come out in July and August, but seldom perfect seeds in this climate. It is a native of the South of France.

The second species rises with a shrubby stalk to the height of five or six feet, sending out some side branches, which in the spring have on their lower parts leaves composed of many small flat leaflets, finely cut like those of coriander, and of a sea-green colour; these leaves soon fall off, and the upper part of the branches is closely covered with long rush-like leaves having four angles, coming out in clusters from each joint. The flowers grow in spreading umbels at the extremities of the branches; are small, of an herbaceous colour, and succeeded by oblong channelled seeds. It is a native of the Cape, and flowers from June to August.

The third has a shrubby branching stem of moderate growth: the leaves are sharp and rather fleshy ; and the flowers in small umbels at the end of the branches. It is a native of Spain, and flowers in August and September.

Culture.—These sorts of plants may be propagated either by seeds or cuttings. In the first method the seeds should be sown in autumn, soon after they are ripe, in pots of light mould, and placed in a frame, to have shelter from frost during winter, and in spring plunged in a hot-bed, especially the two green-house kinds, which soon brings up the plants. These should be inured to the full air, and, when of proper growth, transplanted into separate small pots, shade and occasional waterings being given in the summer: in autumn the plants should be placed in a green-house or frame, and in spring following those of the first sort planted out in the nursery-ground.

In the second method the cuttings should be planted out in spring, in pots of light earth, plunging them in a moderate hot-bed, where they readily take root.

The common shrubby kind may also be raised by cuttings in the common ground, by planting them in the later summer months, and sheltering them occasionally from the frost during the winter; or by planting them in pots at the same time, and placing them in a garden-frame for occasional shelter from frost. In either method the cuttings emit roots in the spring; water being freely given in summer, and shelter again in winter. In the spring following they should be planted out in a sheltered place in the nursery, to attain proper growth for the shrubbery quarters.

The first affords an ornamental effect in the fronts of clumps and other parts of shrubberies, and the others in assemblage with other potted plants of similar growth.

2. BULBOCODIUM VERNUM.

SPRING BULBOCODIUM.

This genus contains a plant of the bulbous-rooted flowering perennial kind. Mountain Saffron.

It belongs to the class and order *Hexandria Monogynia*, and ranks in the natural order of *Spathaceæ*.

The characters are: that there is no calyx: the corolla hexapetalous, funnel-form: claws very long, linear: throat connecting the petals: border erect: petals lanceolate, concave: the stamina consist of six subulate filaments, inserted into the claws of the petals: the anthers are incumbent: the pistillum is an ovate subulate germ, obtusely three-cornered, and superior: the style is filiform, the length of the stamens: the stigmas three, oblong, erect and channelled: the pericarpium is a triangular, acuminate capsule, angles obscure, and three-celled: the seeds are numerous.

There is only one species cultivated for ornament, *B. vernum*, Spring-flowering Bulbocodium.

In this the bulb or root resembles that of common colchicum in shape, but is much smaller; it is covered with a dark-brown skin. In January, or before the middle of the following month, the flower springs up inclosed within three brownish-green leaves, which opening themselves as soon almost as they are out of the ground, show their buds for flowers within them very white oftentimes, before they open far, and sometimes also purplish at first appearing. There is frequently only one flower, but never more than two flowers on a root; they never rise above the leaves, or the leaves much higher than them, whilst they last; they are smaller than those of colchicum; at first are of a pale red or deep blush colour, but afterwards change to a bright purple, and continue long in beauty, if the weather be not severe. After the flowers are past, the leaves grow to the length of four or five inches, and in the middle of them the seed-vessel rises up.

It has the habit of colchicum, but differs in having only one style: from the crocus, which it much resembles, it is also distinguished by the number of its stamens. It is a native of Spain, &c.

Culture.—This may be increased by off-sets removed at the time when the flower and leaf decay, every second or third year; also by sowing the seed in pots filled with loamy earth, in autumn, sheltering them in a frame from frost during the winter: the plants appear in spring, which, on the decay of the leaves, should be taken up for planting in the borders in the following autumn, where they flower the year following.

When the roots are not frequently taken up, they flower much stronger, and produce a greater increase than when treated in the contrary manner.

The plants should have a warm situation, and fresh soil that has not been improved by manure.

They afford an agreeable variety in beds, borders, and clumps, of pleasure and other grounds.

3. BLITUM CAPITATUM.

BERRY-HEADED STRAWBERRY-BLITE.

THIS genus comprises different plants of the annual herbaceous ornamental kind. The Blite, or Strawberry Spinach.

It belongs to the class and order *Monandria Digynia*, and ranks in the natural order of *Holoraceæ*.

The characters are: that the calyx is a three-parted, spreading, permanent perianthium, the divisions ovate, equal, two more gaping than the other: there is no corolla: the stamina a setaceous filament, longer than the calyx, within the middle division, and erect: the anther is twin: the pistillum is an ovate, acuminate germ: the styles are two, erect, and gaping, the length of the stamen: the stigmas are simple: the pericarpium is a very thin capsule, (rather the crust of the seed) ovate, a little compressed, contained within the calyx now become a berry: the seed single, globular and compressed, the size of the capsule.

The species mostly cultivated for ornament are: 1. *B. capitatum*, Berry-headed Strawberry Blite; 2. *B. virgatum*, Slender-branched Strawberry Blite; 3. *B. Tartaricum*, Tartarian Strawberry Blite.

The first is an annual plant, with leaves somewhat like those of Spinach. The stalk rises about two feet and a half high, when cultivated in gardens. The leaves on the lower part of it are of the same shape with the root-leaves, only smaller. The upper part of it has flowers coming out in small heads at every joint, and is terminated by a small cluster of the same. After the flowers are past, these little heads swell to the size of wood strawberries, and when ripe have the same appearance; being very succulent, and full of a purple juice, which stains the hands, and was formerly used for culinary purposes as a colouring ingredient.

There are varieties, with white and red leaves.

The second species seldom grows more than one foot high, with smaller leaves than the first, but of the same shape. The flowers are produced from the axils, almost the whole length of the stalk: they are small, and collected into little heads, shaped like those of the first, but smaller, and not so deeply coloured. It is a native of the South of France.

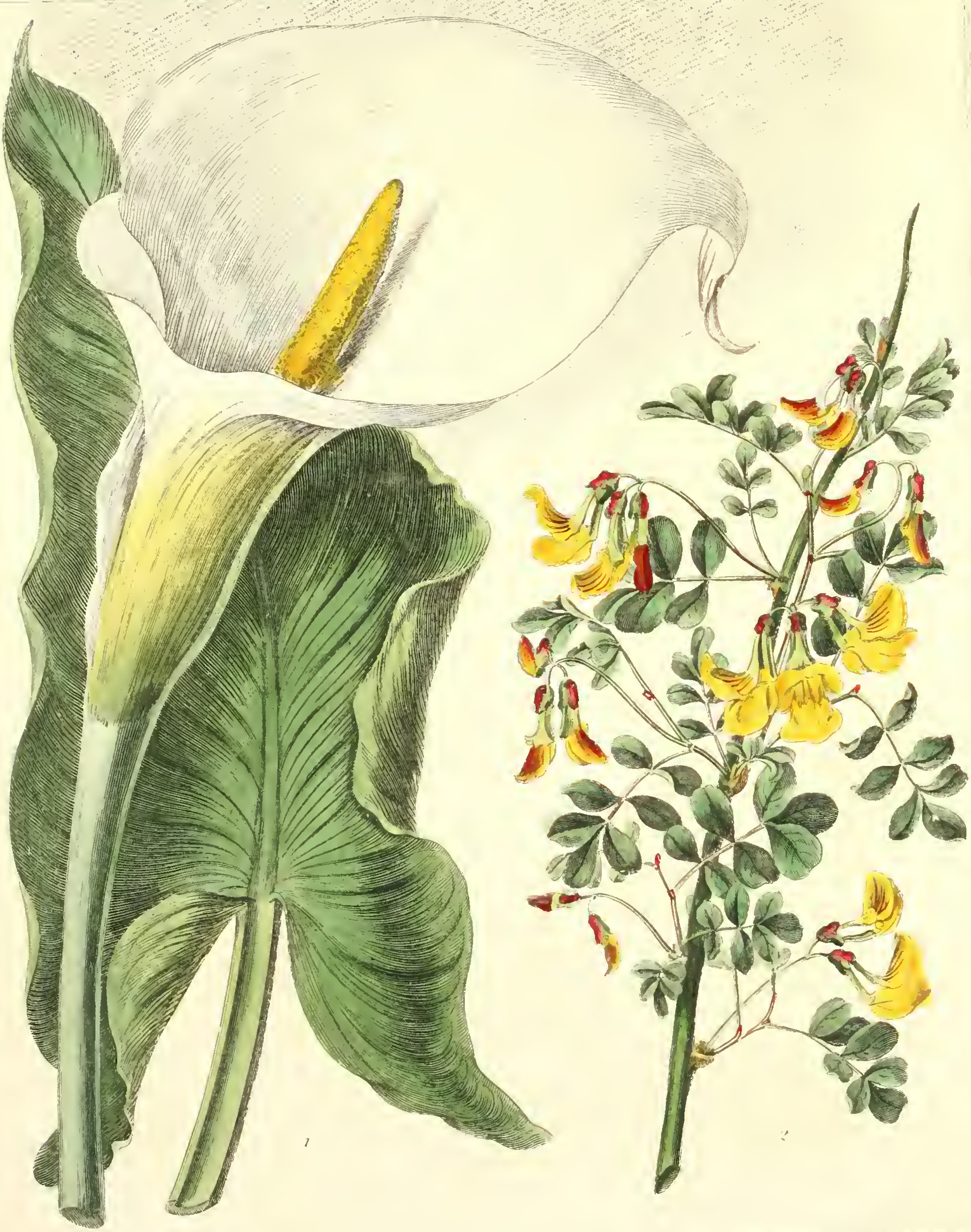
There are varieties, with striped leaves, and with white flowers.

The third rises near three feet high: the leaves are triangular, ending in very acute points, as also the indentures on the edges of the leaves. The flowers are axillary in small heads. The fruit is of the same shape and colour as those of the first, but smaller. This differs from that in the shape and indentures of the leaves; and in having leaves placed between the fruits the whole length of the stalk, which is not terminated by heads as in the first, but has leaves above the heads. Martyn supposes this is probably no more than a variety of the second sort.

Culture.—These plants are raised by sowing the seeds annually, in the early spring months, in patches of three or four together, in the borders or clumps where they are to remain, the mould in the places being broken down and rendered rather fine before they are put in. They may also be sown on beds of light earth, and when they rise to a sufficient growth be transplanted to the places where they are to grow, which should be done before the flowering stems rise. The first is the best method. A few may also be raised in pots for particular purposes, which must be kept occasionally watered in dry seasons, and supported by sticks.

When planted out in the natural ground, they must be kept clear from weeds, and properly thinned, and have support when necessary, to prevent their being pressed down by the weight of the fruit. They often rise freely from self-sown seeds.

They are chiefly cultivated for the ornament which the fruit affords in the latter end of summer, which is as large as that of the common strawberry, and of a red colour. They have a good effect when set out in assemblage with other potted plants in conspicuous situations about the house.



Painted by S. Edwards

London Published Feb 1 1800 by G Kearsley Fleet Street

Engraved by F. Sansom

1 Calla Æthiopica
Æthiopian Calla

2 Coronilla emerus
Scorpion Senna

PLATE XII.

1. CALLA ÆTHIOPICA.

ÆTHIOPIAN CALLA.

This genus contains a plant of the herbaceous flowery perennial green-house kind. Æthiopian Arum.

It belongs to the class and order *Gynandria Polyandria*, and ranks in the natural order of *Piperitæ.*

The characters are: that the calyx is a one-leafed spathe, ovate-cordate acuminate, coloured at top, very large spreading, permanent: the spadix finger-shaped, quite single, erect, covered with fructifications: there is no corolla: the stamina consist of some filaments intermixed with the germs the length of the pistils, permanent, compressed, truncate: the anthers are simple, truncate, and sessile: the pistillum to each is a roundish obtuse germ: the style simple, very short: the stigma acute: the pericarpium contains as many berries as there are pistils, four-cornered, globular, pulpy, and one-celled (several-celled): the seeds numerous (six to twelve,) solitary, oblong, cylindric, and obtuse at both ends.

The species cultivated for ornament is *C. Æthiopica*, Æthiopian Arum, or Sweet Calla.

It has thick, fleshy, tuberous roots, which are covered with a thin brown skin, and strike down many strong fleshy fibres into the ground. The leaves arise in clusters, having foot-stalks more than a foot long, which are green and succulent: the leaves are eight or nine inches in length, and of a shining green, ending in a sharp point, which turns backward: between the leaves comes out the scape, which is thick, smooth, of the same colour as the leaves, rising above them, and terminated by a single flower shaped like those of the arum: the hood or spathe is twisted at the bottom, but spreads open at the top, and is of a pure white colour. In the centre of this is situated the spadix or club, which is of an herbaceous yellow colour, upon which the small herbaceous flowers are closely placed; it is only about half the length of the spathe; it is succeeded by roundish red berries. It is a native of the Cape.

Culture.—This plant is readily increased by offsets from the root, which should be separated in the autumn, and planted out singly in pots of light earth, where they become full plants the following year. The plants may be kept in the full air during the summer, but during the winter should have the protection of the green-house or a garden-frame.

These plants, from the singularity of their growth, and their being constantly furnished with leaves, have an agreeable effect, and produce much variety among other potted plants.

2. CORONILLA EMERIS.

SCORPION SENNA.

This genus comprises plants of the evergreen and deciduous shrubby kinds.

It belongs to the class and order *Diadelphia Decandria*, and ranks in the natural order of *Papilionaceæ*.

The characters are: that the calyx is a simple umbellule: perianth one-leafed, very short, compressed, bifid, erect; the three inferior teeth smaller; the two superior conjoined; permanent: the corolla papilionaceous: standard heart-shaped, reflected on all sides, scarce longer than the wings: wings ovate, converging at top, gaping at bottom, obtuse: keel compressed, acuminate, ascending, usually shorter than the wings: the stamina consist of diadelphous filaments (single and nine-cleft), ascending at almost a right angle, the tips widish; anthers simple, small: the pistillum is a columnar, oblong germ: style bristled, ascending: stigma small, obtuse: the pericarpium is a legume, very long, columnar, straight, contracted with an isthmus between each seed; two-valved, one-celled, parting by joints: the seeds many.

The species are: 1. *C. juncea*, Linear-leaved Coronilla; *C. Valentina*, Small Shrubby Coronilla; 3. *C. argentea*, Silvery-leaved Coronilla; 4. *C. glauca*, Great Shrubby Coronilla; 5. *C. Emerus*, Scorpion Senna.

The first rises from two to four feet high, with many slender woody branches, as in broom: the leaves are linear, spear-shaped, small, and somewhat fleshy: the flowers stand upon pretty long axillary peduncles, in small bunches, are of a bright yellow colour, and appear for six or seven months together, but have not produced seeds in this climate. It is a native of the South of France.

The second species rises three or four feet high: the leaflets nine or eleven, oblong-cordate or wedge-form retuse, with a small point or none, glaucous, somewhat fleshy, having the colour of rue in the early spring: the flowers are on long axillary peduncles in close bunches, small and deep yellow. It has a strong odour, and is a native of Spain.

The third is a very humble shrub, rarely growing more than two feet high, when planted in a good soil; but in a dry barren place, not much above one foot: the stem is hard and woody, from which the branches are produced on every side near the ground, so as to form a low bushy shrub. At the joints where the leaves are produced are two ear-shaped stipules. The flowers are on long slender axillary peduncles, yellow, and have a strong sweet scent: it produces plenty of flowers in May, making a fine appearance; the seeds ripening in August. Its silvery colour is said to be occasioned by its growing on a poor dry soil. It is a native of the island of Crete.

The fourth species seldom grows more than three or four feet high, with a woody branching stem: the leaflets five or seven, glaucous, wedge-form, seldom obcordate, with a small reflex point: the flowers bright yellow, in a roundish bunch: they are remarkably fragrant during the day. It is a native of the South of France.

The fifth rises from two to six feet in height (eight or nine in gardens): the stem not very straight, branched and brachiate (so weak as sometimes to want support): the leaflets three or four pairs, gradually larger, almost cordate, glaucous and smooth: the peduncles umbelled, with from three to five yellow flowers. Miller kept this species under its old name of *Emerus*, dividing it into greater and less; the former being common in gardens, but the latter in very few. It is a native of France, flowering in April.

Culture.—As the first four sorts, and especially the second, are rather tender, though they will succeed in the open air in mild winters, they should in common be potted, to be moved to the shelter of a green-house, or glass frame, or some place in a sheltered situation in the full ground. The last sorts are hardy and elegant flowering-shrubs, for the clumps and other parts of extensive pleasure-grounds.

The four first kinds may be increased by seeds sown in the spring, either on a warm border, or in a slender hot-bed; but the latter is the best mode, as it produces them more forward, in pots of rich earth half an inch in depth, plunging them in a hot-bed when necessary. When the plants are two or three inches in height, they should be pricked out in separate small pots, giving shade, water, and air, hardening them gradually to the full air, about the middle of summer, in which they may remain till autumn, then removing them to the shelter of a frame during winter, covering them only in time of frost, or very severe weather.

The last sort, or Scorpion Senna, may be raised plentifully both by seeds, layers, and cuttings; the seeds being sown in March, in a bed of light earth, and covered half an inch deep, giving occasional waterings in dry weather. When the plants have had one or two years' growth, they should be removed into nursery rows, and in two or three more they will be large enough for planting in the shrubbery, or other places. The layers of the young shoots may be laid down in autumn or winter, giving them a gentle twist. When they are perfectly rooted, they should be taken off, and planted out as above. The cuttings of the young shoots should be planted in the spring, or autumn, in shady borders, giving water the following spring and summer. When well rooted they should be removed, as in the above methods.

PLATE XIII.

1. CALYCANTHUS FLORIDUS.

CAROLINA ALLSPICE.

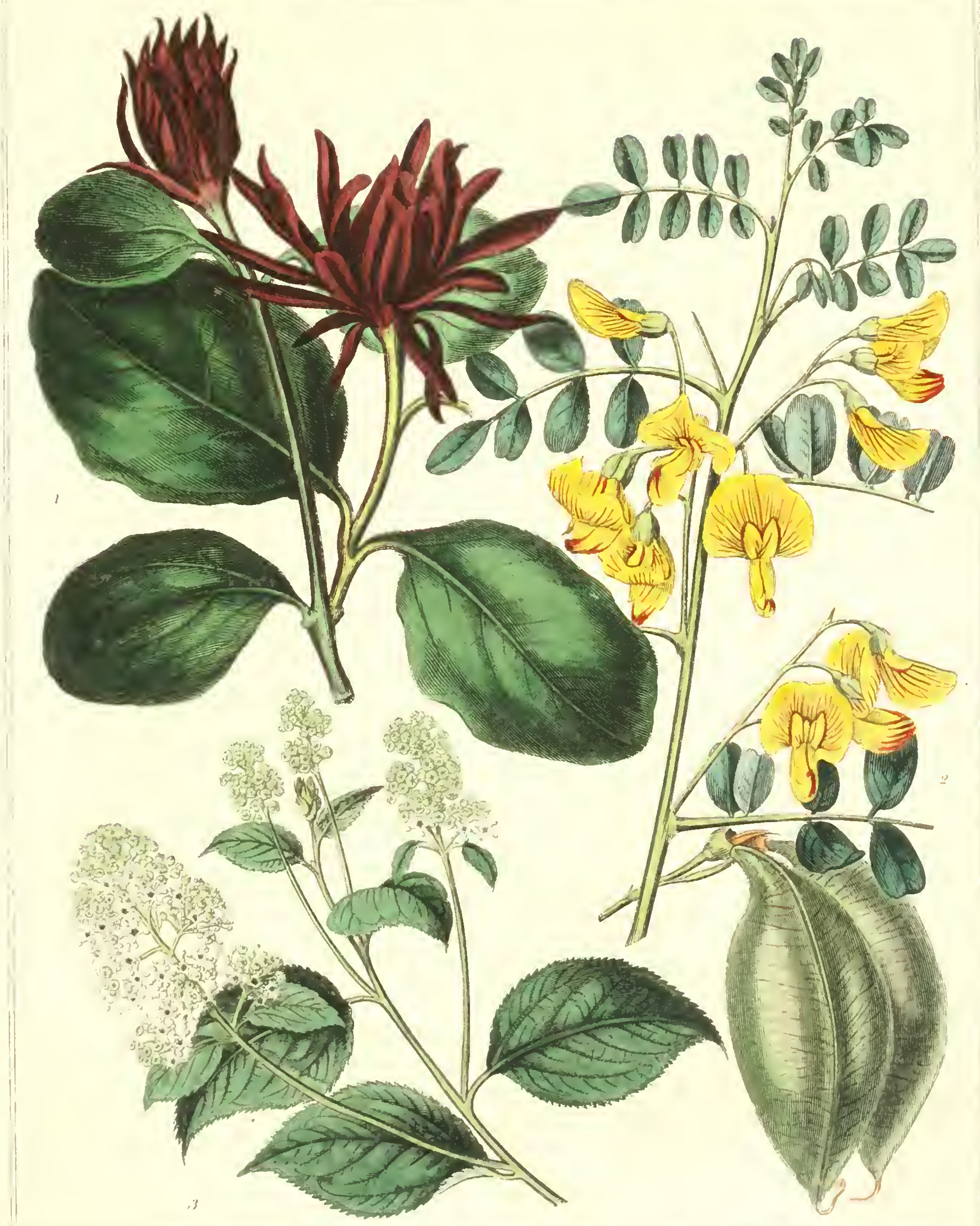
This genus comprises a plant of the aromatic shrubby deciduous kind.

It belongs to the class and order *Icosandria Polygynia*, and ranks in the natural order of the *Rosaceæ*.

The characters of which are: that the calyx is a one-leafed, pitcher-shaped, squarrose perianthium: leaflets coloured, lanceolate; the superior ones gradually larger, resembling petals: there is no corolla, except the calycine folioles, representing petals: the stamina consist of numerous subulate filaments, inserted into the neck of the calyx: the anthers oblong, furrowed, growing to the top of the filaments: the pistillum consists of a great many germs, ending in subulate compressed styles of the length of the stamens: the stigmas are glandulous: there is no pericarpium, the calyx being thickened, obovate, and berried: the seeds are very many and tailed.

The only species cultivated is *C. floridus*, Carolina All-spice.

It rises to the height of eight or ten feet where it grows naturally, but seldom more than four feet high in this country, dividing into many slender branches near the ground; covered with a brown aromatic bark, with two entire leaves placed opposite at every joint on short foot-stalks: the flowers grow single on short peduncles at the extremity of the branches; they have two series of narrow thick petals, which spread open, and turn inward at the top, like those of the starry anemone colour; these are of a dusky purple colour, and have a disagreeable scent. They appear in May. The strong aromatic scent has obtained it the title of All-spice.



[illegible]
London Published [illegible]

Calycanthus floridus
1 Carolina Alspice

Colutea arborescens
2 Common Bladder Senna

Ceanothus Americanus
3 New Jersey Tea Tree

There are varieties with long leaves and with round leaves.

Culture.—This is increased by laying down the young branches, or one-year's shoots, which may be taken off in a twelvemonth, and set where they are to remain, as they do not bear transplanting well afterwards. The effects of drying winds should be guarded against in the summer, and frosts in winter; the former by very moderate waterings, and the latter by coverings of bark. The best season for laying down is the autumn, and for planting out, the spring.

This shrub is capable of bearing the open air, but requires a dry soil and warm exposure.

It is very ornamental in the fore parts of clumps or borders in shrubbery and other ornamented grounds.

2. COLUTEA ARBORESCENS.

COMMON BLADDER SENNA.

This genus contains plants of the hardy deciduous flowering shrubby kind. Bladder Senna.

It belongs to the class and order *Diadelphia Decandria*, and ranks in the natural order of *Papilionaceæ*.

The characters are: that the calyx is a one-leafed perianthium, bell-shaped, five-cleft, erect, nearly equal, permanent: the corolla is papilionaceous: standard, wings, and keel differ in figure and various proportion: wings pressed close together, lanceolate: the stamina have diadelphous filaments, (single and nine-cleft) ascending: anthers simple: the pistillum is an oblong germ, compressed, attenuated at each end: style ascending: stigma is a bearded line extended from the middle of the style to its tip, from the upper part: the pericarpium is a legume very large, very broad, inflated, transparent and membranaceous, the upper suture erect, the lower gibbous, one-celled, gaping on the upper suture at the base: seeds several, kidney-shaped.

The species cultivated are: 1. *C. arborescens*, Common Bladder Senna; 2. *C. cruenta*, Oriental Bladder Senna; 3. *C. Pocockii*, Pocock's Bladder Senna; 4. *C. frutescens*, Scarlet Bladder Senna.

The first has several woody stems, which grow to the height of twelve or fourteen feet, sending out many woody branches, with winged leaves, composed of four or five pairs of oval lobes, placed opposite, terminated by an odd one; these are indented at the top in form of a heart, and are of a grayish colour. The flowers come out from the wings of the leaves upon slender peduncles about two inches long, each sustaining two or three yellow flowers, whose standard is reflexed and large, with a dark-coloured mark on it. Native of the South of France, &c.

The second species has a woody stem, which sends out many branches on every side, which do not rise above seven or eight feet high; these are not so strong as those of the first sort, and the leaves are composed of five or six pairs of small heart-shaped leaflets, terminated by an odd one. The flowers proceed from the side of the branches, standing upon peduncles, each sustaining two or three flowers, shaped like those of the first sort, but smaller; they are of a dark red colour, marked with yellow, appearing in June, the seeds ripening in autumn. It was found in the Levant.

The third is a shrub which seldom grows more than six or seven feet high in this country. The branches are very slender, and much more pliant than those of the common sort, and therefore it grows less erect. The leaves are composed of nine pairs of leaflets, and are much smaller. The flowers are of a brighter yellow, appear a month earlier than in the common sort, and there is a succession of them till late in the autumn, which renders it much more valuable; and the branches not shooting so luxuriantly nor so upright, it is in less danger of being broken by strong winds in summer. It is a native of the Levant.

The fourth species is a hoary shrub, with tomentose leaflets, smooth on the upper surface. It rises from two to four feet in height in favourable seasons, and in a warm situation; plants of three years standing will sometimes be six feet high. The stem is weak, the side branches grow erect, and the leaves have ten or twelve pairs of leaflets. The flowers are sustained on axillary peduncles, three or four together, and are of a fine scarlet colour, coming out in June. It is a native of the Cape.

Culture.—All these plants are capable of being increased by sowing the seed in the early spring months, as in February for the three first sorts, and the two following months for the fourth, upon beds of common earth, covering them in to the depth of about half an inch. When the plants have attained sufficient growth, as in the following spring for the former sorts, and when they are three or four inches high in the latter, they should be removed, and the first sorts planted out in rows in the nursery, and the last in warm sheltered situations or in pots, to be protected during the winter.

This sort may likewise be rendered much forwarder, so as to flower the same year, by having recourse to a hot-bed.

The three first species are also capable of being raised by layers from the young shoots, made either in the autumn or spring seasons; but as the fourth sort does not continue long, and is more tender than the others, new plants should be raised from every seed two or three years.

They are all beautiful ornamental plants, especially the fourth, and may be introduced into the clumps, borders, and other parts of shrubberies and pleasure-grounds, where they produce a fine effect by their foliage and flowers. The last sort should, however, have a dry warm soil and sheltered sunny situation.

3. CEANOTHUS AMERICANUS.

NEW JERSEY TEA-TREE.

THIS genus comprises plants of the tree and shrubby exotic kinds.

It belongs to the class and order *Pentandria Monogynia*, and ranks in the natural order of *Dumosæ*.

The characters are: that the calyx is a one-leafed, turbinate perianthium; border five-parted, acute, close-converging, and permanent: the corolla has five equal petals, roundish, of an arched saccular shape, compressed, very obtuse, spreading, smaller than the calyx, seated on claws the length of the petal, growing from the interstices of the calyx: the stamina consist of five subulate, erect filaments, opposite to the petals, the length of the corolla: the anthers are roundish: the pistillum is a superior, triangular germ: the style cylindric, semitrifid, the length of the stamens: the stigma obtuse the pericarpium is a berry (capsule), dry, three-grained, three-celled, obtuse, retuse, and set with tubercles: the seeds solitary and ovate.

The species commonly cultivated are: 1. *C. Americanus*, American Ceanothus, or New Jersey Tea; 2. *C. Asiaticus*, Asiatic Ceonothus; 3. *C. Africanus*, African Evergreen Ceanothus.

The first in this climate is a shrub, which seldom rises more than three or four feet high, sending out branches on every side from the ground upwards: the branches are very slender, and, as it is pretty late in the spring before they begin to shoot, keep growing very late; consequently, unless the autumn proves dry and mild, the tender shoots are often killed down very low by the early frosts; but in favourable seasons, the extreme parts of the shoots only are injured by the cold: these branches are garnished with oval-pointed leaves, placed opposite, deciduous, and of a light green colour: the flowers are produced at the extremity of each shoot in close thick spikes, and composed of five small petals, of a clear white colour, making a fine appearance, as the whole shrub is covered over with flowers.

These appear in July, and in mild seasons again in October. It is a native of North America, where the leaves are sometimes used as tea.

The second species rises with a shrubby branching stem, four feet high. The branches are alternate, flexuose, striated and smooth: the leaves are alternate, resembling those of the pear, acuminate, smooth, at the ends of the small branches, scarcely an inch in length, on petioles half the length of the leaves: the racemes from each axilla usually two, small, the length of the petioles, consisting of many florets, on very short pedicels, caducous, one often ramaining which bears fruit: hence the raceme is toothletted from the falling of the flowers, which are of a greenish colour: the berries are large. It is a native of Ceylon, &c.

The third species rises to the height of ten or twelve feet, with a woody stem, covered with a rough dark-coloured bark, and sends out many weak branches, which hang downwards: these while young are green, but afterward change to a purplish colour: they are garnished with oblong pointed leaves, of a lucid green, smooth, and slightly serrate on their edges: the flowers are small, of an herbaceous colour, coming out from the side of the branches; sometimes appearing in July, but not succeeded by seeds in this climate, nor do the plants often produce flowers; being chiefly preserved for the beauty of their shining evergreen leaves. It is a native of the Cape. and sometimes known by the title of *Alaternoides*.

Culture.—This, in the first sort, may be effected either by seeds or layers. In the first mode the seeds should be sown, as soon as procured, in pots of light earth, lightly covered in, placing them in a frame, to have occasional shelter in bad weather; and in spring plunge them in a hot-bed to bring up the plants, hardening them gradually to the full air in summer, but in autumn removing them to have shelter until the following spring, when they should be planted out in separate small pots, or in a nursery-bed in the full ground, being covered occasionally again in the following winter, as they require protection from severe frost the two or three first years of their growth.

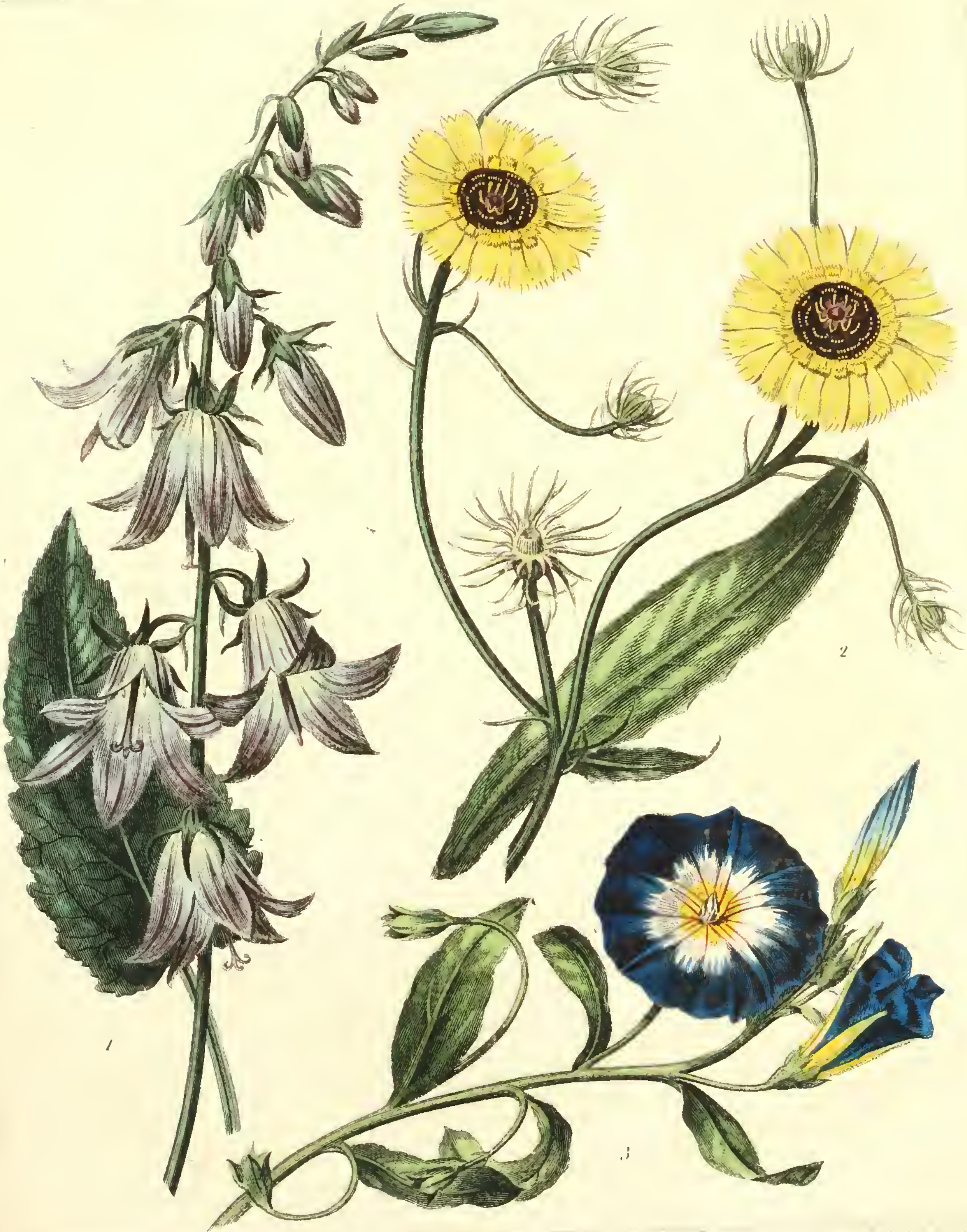
In the latter method, some of the youngest branches should be laid down in autumn, in the usual way, which become rooted in twelve months, and in the spring after should be planted out. Some of the first young shoots may also be laid down during the summer, in order to have the greater chance of success.

In the second species the propagation may be effected by seeds, which should be sown in pots of light earth, plunging them in the bark-bed, and likewise by laying the young shoots down in the autumn, plunging the pots as above: the plants afterwards should be managed as other woody exotics of the stove.

The third sort is raised expeditiously by laying down the young shoots, either in their own pots, or others placed for the purpose, in the autumn. They are also capable of being increased by young cuttings, planted in the spring in pots, plunging them in the bark, or other hot-bed about two months. They afterwards require only the ordinary culture of greenhouse plants.

The first is an elegant little flowering shrub, for the more conspicuous compartment of the shrubbery, being planted in a moderately dry soil and sheltered situation, in the fronts of the clumps or borders.

The second affords variety in the stove; and the third is worthy of a place in the greenhouse collection, for the beauty of its shining green leaves.



London Published Aug 1st 1825 by G Kearsley Fleet Street

1 Campanula rapunculoides
Nettle leaved Campanula

2 Crepis barbata
Yellow Hawkweed

3 Convolvulus tricolor
Small blue Convolvulus

PLATE XIV.

1. CAMPANULA RAPUNCULOIDES.

NETTLE-LEAVED CAMPANULA.

This genus comprises various plants of the annual, biennial, and perennial herbaceous flowery kind. The Bell-flower.

It belongs to the class and order *Pentandria Monogynia*, and ranks in the natural order of *Campanaceæ*.

The characters are: that the calyx is a five-parted perianthium, acute, erect-expanding, superior: the corolla is monopetalous, bell-form, impervious at the base, half-five-cleft, marcescent: divisions broad, acute, spreading: the nectary in the bottom of the corolla, composed of five valves, acute, converging, covering the receptacle: the stamina consist of five capillary filaments, very short, inserted on the tips of the valves of the nectary: the anthers are longer than the filaments, and compressed: the pistillum is an angular inferior germ: the style filiform, longer than the stamens: the stigma three-parted, oblong, thickish: divisions revolute: the pericarpium is a roundish angular capsule, three or five-celled, emitting the seeds at so many lateral openings: the seeds are numerous and small: the receptacle is columnar and adnate.

The species mostly cultivated for the purposes of ornament and use are: 1. *C. persicifolia*, Peach-leaved Bell-flower; 2. *C. pyramidalis*, Pyramidal or Steeple Bell-flower; 3. *C. carpatica*, Carpathian or Heart-leaved Bell-flower; 4. *C. latifolia*, Broad-leaved Campanula, or Giant Throat-wort; 5. *C. trachelium*, Great Throat-wort, or Nettle-leaved Campanula; 6. *C. grandiflora*, Great-flowered Bell-flower; 7. *C. medium*, Small Pyramidal Campanula, or Canterbury Bells; 8. *C. speculum*, Venus's Looking-glass; 9. *C. Americana*, American

Bell-flower; 10. *C. fruticosa*, Shrubby Cape Bell-flower; 11. *C. rapunculus*, Esculent Rampion.

There are other species in this extensive genus deserving of attention.

The first has the root like that of Navew, and eatable: the stem is very straight, eighteen inches high and more, (in gardens two feet and a half,) unbranched, angular, smooth, as is the whole plant: the flowers are in a thin spike, one or two together, on very long peduncles, which have two stipules at the base: the corolla is large, broad bell-form, deep blue; the segments short, and moderately acuminate. It is a perennial plant, native of most parts of the continent of Europe, flowering in June and July.

There are varieties with single blue and white flowers, and with double blue and white flowers.

The second species, as it appears in the garden, has thick tuberous roots, which are milky; these send out three or four strong, smooth, upright stalks, which rise near four feet high, and are garnished with smooth oblong leaves, whose edges are a little indented: the lower leaves are much broader than those on the stalks: the flowers are produced from the side of the stalks, and are regularly set on for more than half their length, forming a sort of pyramid; these are large, open, and shaped like a bell, and mostly of a light-blue colour.

There are varieties with white flowers and with double flowers.

The third affords a milky juice when wounded: the root is whitish and perennial; the stems herbaceous, annual, weak, hardly branching, bearing one or very few flowers. In gardens it becomes branching and many-flowered. The root-leaves are kidney-form, roundish; the peduncle elongated and smooth; the corolla blue. It flowers the whole summer, and is a native of the Carpathian Alps.

According to Mr. Curtis, it is still scarce in gardens, but deserves to be more known and cultivated: its flowers are in proportion to the plant, being large and showy.

The fourth species has the stem three feet high and more, angular and smooth, but not branching: the leaves are sharply serrate, on short petioles, and hirsute: the flowers are axillary, one or two together, on peduncles shorter than the leaf: calyx smooth, with broad triangular segments: corolla very large, blue; the segments triangular, divided by a line: the fruit obliges the peduncle to bend down with its weight. It is a native of the northern parts of the island, flowering in July.

There are varieties with single and double purple, and with single and double white flowers; with single and double pale-red flowers; and with striped flowers.

The fifth species has a perennial root: the stems are from two to three feet in height, upright, stiff, hairy, angular, the angles membranaceous, putting out a few short side-branches: the leaves resembling those of the great nettle, but rather shorter and broader, alternate, ovate, cordate, pointed, hairy, deeply toothed, sometimes having two or three lobes; petioled, except the upper ones, which are sessile: the peduncles are alternate, axillary, trifid, and three-flowered. The number of flowers, however, varies from one or two to three, four, and even five; they are large and nodding. It is a native of most parts of Europe, &c. flowering in July and August.

There are varieties, with single and double blue flowers, with single and double white flowers, and with single and double pale purple flowers.

The sixth species has the whole plant very smooth: the root perennial, white, fusiform, the thickness of a finger, and branched: the stems are few, erect or ascending, simple, round, a foot high, leafy all over, annual, terminated with one handsome flower, but without scent, nodding a little, with sometimes one or two flowers more from the upper axillas: the leaves are irregularly scattered, sessile or on very short petioles, ovate or sublanceolate, short and sharply serrate: sometimes a few of the leaves, and at others all of them, are in threes: the corolla is two inches in diameter or more, very deep blue, with numerous blue veins; elegantly pear-shaped before expanding, and at first green. It flowers in June and beginning of July, and is a native of Siberia.

The seventh has a biennial root: the leaves are oblong, rough, hairy, serrate, coming out without order from the root, narrowing into a petiole. From the centre of these, the second season, arises a stiff, hairy, furrowed stalk about two feet high, sending out several lateral branches, with long, narrow, hairy, serrate, sessile leaves, placed alternately: from the setting on of these leaves come out the peduncles, those on the lower part of the stem and branches four or five inches long, diminishing gradually in length upwards, and thus forming a sort of pyramid. The flowers are very large, and make a fine appearance; they are smooth, and the segments turn back at the end; they come out the beginning of June, and, if the season be not very hot, continue a month in beauty. It grows naturally in Germany, &c.

There are varieties, with blue, purple, white, striped, and double flowers.

The eighth species is an annual plant, which rises with slender stalks a foot high: the flowers are of a beautiful purple, inclining to a violet colour, (sometimes pale purple or white,) and in the evening fold up into a pentagon figure, whence it is sometimes called Viola pentagonia: the calyx is composed of five narrow leaves, which spread open, turn back, and are much longer than the petals; these remain on the top of the prismatic seed-vessel, which is filled with small angular seeds: the stem is tender, quadrangular, naturally procumbent, branched from the bottom at very great angles: the leaves sessile, obovate, and waved about the edge: the flowers axillary, erect, on very long peduncles: the corolla wheel-shaped, and so deeply five-cleft that the segments, which are ovate, scarcely cohere.

It is a native of the southern countries of Europe, flowering from May to September.

There are varieties, with bright blue flowers, with white flowers, and with pale purple flowers.

The ninth species has an annual root; the stem and germs smooth; the leaves acuminate; the flowers three or more from each axil or bracte; the corollas small; the style longer than the corolla. It is a native of Pennsylvania, flowering in July.

There are varieties, with single white, with single blue, and with double blue flowers.

The tenth is a shrubby ornamental plant, a native of the Cape of Good Hope, flowering here in August.

In the eleventh species the whole plant is full of a milky juice: the root is biennial, spindle-shaped, sometimes branching: the stem upright, angular, two feet high, hairy towards the base, smooth above: branches alternate, short, upright: the leaves towards the base of the stem hairy above or on both sides, blunt; the upper ones smooth, and becoming gradually more pointed; obscurely notched: teeth glandular, whitish, not projecting beyond the edge of the leaf: there is an awl-shaped bracte at the base of each peduncle: the segments of the calyx are awl-shaped, or setaceous, twice as long as the germ, with a small tooth on each side of the base: the flowers are upright: the corolla blueish purple, sometimes very pale purple or whitish; each segment marked with three lines: the nectary fringed. It grows wild in France, &c., flowering in June, July, and August.

The fleshy roots are eatable, and are much cultivated in France for salads.

Culture.—The plants in this extensive genus are mostly hardy, and increased with little difficulty. The six first sorts, and their varieties, are all capable of being raised by dividing the roots in the autumn or early spring, and planting them out on the beds, borders, or other parts. The former is, however, the better season for the purpose, as the roots become better established before they begin to shoot up into stem. They thrive in almost any soil or situation. As the plants of the steeple bell-flower, trained for adorning halls and chimneys, are seldom proper for the purpose the following season after being planted out, a supply of young plants should be annually raised. And though this is mostly done by offsets, as being the quickest mode, the plants raised from seed are always stronger; the stalks rise higher, and produce a great number of flowers, especially where good seeds can be procured.

In the fifth sort, especially with the double variety, the parting their roots should be annually performed in the autumn, otherwise the plants are apt to degenerate to single, and the soil should not be too light or rich in which they are planted, as in either of these cases they degenerate. In a strong fresh loam their flowers are in the greatest perfection.

The broad-leaved sort is also easily propagated by seeds, which it furnishes in great plenty.

In all these sorts, when not sown in the places where they are to remain, the plants should be transplanted into such situations, in the beginning of the autumn, as by that means they flower much better.

The seventh and eighth kinds are increased by seeds, which should be sown in the spring, on beds of common earth, keeping them clean from weeds till the following autumn; when they may be transplanted into the borders or other parts. And as the plants in the first of these sorts perish the second year, young ones should be annually raised.

The latter of these kinds are mostly sown in patches in the borders or clumps, among other hardy annuals, at the above period; but if sown in autumn the plants grow much taller, and flower much earlier.

The ninth sort is propagated by planting the offsets from the roots in the beginning of the autumn, in beds, or other places, where they are to remain. And the tenth species may be increased by planting the cuttings of the shoots in pots of light earth, and plunging them in the hotbed of the stove.

The eleventh kind is raised from seed, which should be sown in April in a moist shady situation, the plants being thinned out to five or six inches distance. The roots are ready for use about the beginning of autumn. It requires to be sown annually.

All the hardy flowering sorts are highly ornamental in the borders of pleasure-grounds and other parts, as they continue long in flower. And the tender kinds afford variety in the greenhouse.

2. CREPIS BARBATA.

YELLOW HAWKWEED.

This genus comprises plants of the herbaceous ornamental annual kind. Bastard Hawk-weed.

It belongs to the class and order *Syngenesia Polygamia Æqualis*, and ranks in the natural order of *Compositæ Semiflosculosæ*.

The characters are: that the calyx is common double: exterior, very short, spreading, deciduous: interior ovate, simple, furrowed, permanent: scales linear, converging: the corolla is compound imbricate, uniform: corollets hermaphrodite, very many, equal: proper one-petalled; ligulate, linear, truncate, five-toothed: the stamina consist of five capillary filaments, very short: anther cylindric, tubular: the pistillum a somewhat ovate germ: style filiform, length of the stamens: stigmas two, reflex: there is no pericarpium: calyx roundish: the seed solitary, oblong, fusiform, sometimes columnar: down hairy, generally stipitate: the receptacle naked, with cells or pits.

The species cultivated are: 1. *C. barbata*, Spanish bearded Crepis, or Purple-eyed Succory Hawk-weed; 2. *C. rubra*, Purple Crepis.

The first is an annual plant, putting out leaves next the root, nine inches in length, and almost two broad in the middle, of a light green colour: the stems are a foot and half high, dividing into many branches, having leaves of the same form with the others, but smaller and sessile: the flowers are produced at the ends of the branches, and of a yellow colour, with a purplish base. It flowers in June; and is a native of the South of Europe.

There are varieties, with deep yellow flowers, and with sulphur-coloured flowers inclining to white, each having a dark purple base.

The second species has also an annual root; the root-leaves many, lanceolate, and deeply jagged. From these the stalks arise, which are a foot and half high, dividing into many slender branches, each terminated by one large flower of a red colour. It is a native of Italy.

Culture.—These, like other annuals of the hardy kind, must be raised by sowing the seeds in either the autumn or spring; or at both periods, where they are required to flower for a great length of time, in patches, in the clumps, borders, or other parts, where they are to remain, six or seven in each, covering them in lightly. When the plants have attained six or seven inches in growth, they should be thinned out to three or four in each patch, and be kept free from weeds.

They succeed in most soils and situations, having a pleasing effect in their flowers, in the fronts and other parts of the borders and clumps of ornamented grounds.

3. CONVOLVULUS TRICOLOR.

SMALL BLUE CONVOLVULUS.

This genus contains several plants of the herbaceous trailing annual and perennial kinds.

It belongs to the class and order *Pentandria Monogynia*, and ranks in the natural order of *Campanaceæ*.

The characters are: that the calyx is a five-parted perianthium, converging, ovate, obtuse, very small, permanent: the corolla is one-petalled, bell-shaped, spreading, large, plaited, obscurely five-lobed: the stamina have five subulate filaments, shorter by half than the corolla: anthers ovate, compressed: the pistillum is a roundish superior germ: style filiform, length of the stamens: stigmas two, oblong, broadish: the pericarpium is a capsule enwrapped by the calyx, roundish, two-celled, one, two, or three-valved (commonly three-celled, seldom two or four-celled: partition alternate with the valves): the seeds in pairs, roundish (one or two seeds in each cell, sometimes abortive, few with a twisted embryo).

The species mostly cultivated are: 1. *C. purpurea*, Purple Convolvulus, or Convolvulus Major; 2. *C. tricolor*, Three-coloured Trailing Convolvulus, or Convolvulus Minor; 3. *C. nil*, Anil, Blue or Azure Convolvulus; 4. *C. canariensis*, Canary Evergreen Convolvulus: 5. *C. cenorum*, Silver-leaved Convolvulus; 6. *C. batatas* Tuberous-rooted Convolvulus, or Spanish Potatoes.

The first is an annual plant, that rises on support to the height of ten or twelve feet. In its native situation it sends out long branches, which twist about the trees, and rise to a great height. The leaves are smooth, heart-shaped, ending in long points; the ears at the base are large and rounded, and the petioles long and slender. The peduncles are long, each sustaining three purple-coloured flowers. It flowers from the end of June till destroyed by the frost. It is a native of America.

It is usually known in garden-culture by the name of *Convolvulus Major.*

There are varieties, with deep purple flowers, with white flowers, with red flowers, and with whitish blue flowers.

The second species is an annual plant, with several thick herbaceous stalks, about two feet long, not twining, but bending towards the ground, upon which many of the lower branches lie prostrate. The leaves are likewise sessile. The peduncles come out just above the leaves at the same joint, and on the same side; they are about two inches long, each sustaining one large open bell-shaped flower, of a fine blue colour, with a white bottom, varying to pure white, and sometimes beautifully variegated with both colours. The white flowers are succeeded by white seeds; but in the blue ones they are dark-coloured. It is a native of Barbary, &c. commonly known in garden-culture under the title of *Convolvulus Minor.*

The third is also an annual plant, rising with a twining stalk eight or ten feet high. The leaves are woolly, ending in sharp points and on long petioles. Each peduncle sustains two flowers of a very deep blue colour, whence its name of *Anil* or *Nil*.

It is a beautiful plant; and it flowers all the latter part of the summer. It is a native of America.

The fourth species has strong fibrous roots. The stems are woody, branched, growing twenty feet high, and more when supported. The flowers are axillary, several on one peduncle, for the most part of a pale blue colour, but sometimes white. It flowers in June, July, and August, and sometimes ripens seeds here. It is a native of the Canary Islands.

The fifth has upright, shrubby stems, about three feet high. The leaves are lanceolate, blunt, silky, placed closely on every side the stem; they are near two inches long, and a quarter of an inch broad. The flowers are produced in clusters at the top of the stem, sitting very close; they are of a pale rose-colour, and come out in June and July, but do not perfect seeds in this climate.

The sixth species has a round perennial stem, hispid, prostrate, creeping, putting forth scattered, oblong, acuminate tubers, purple or pale-coloured on the outside. The leaves are angular, on long petioles. The flowers are purple, lateral, large, three or thereabouts together, on upright peduncles. It is a native of both Indies, &c.

Culture.—All the annual kinds are easily raised, by sowing the seed in the early spring months in patches, in the places where they are to flower, four or five seeds in each, half an inch deep. When the plants are an inch or two high, they should be thinned out, so as to leave but two or three of the best in each patch, managing them afterwards as other plants of similar growth.

The perennial species, which are tender, are mostly increased by layers from the young shoots in the spring, which take root freely in three or four months: cuttings of the young shoots also grow freely in a shady border when lanted during thesummer months. Suckers taken from the root also make good plants when planted in the same way. They should be kept in pots of rich earth, and managed in the same way as geraniums, myrtles, and other similar plants.

The Tricolor or Minor Convolvulus may either be suffered to trail upon the ground, according to its natural growth, or tied up to sticks: but the other annual species and varieties, being of the twining or running kind, should have tall sticks to climb upon, on which they will rise several feet in height, flowering all the way, and appearing highly ornamental.

The perennial sorts are elegant plants for the greenhouse collection, and deserve the attention of those who can preserve them during the winter season.

The last species may be raised by planting the roots, either whole or divided, in a warm border, in the early spring months, where they will send up stalks, and flower in the autumn; but to have them in greater perfection, they should be planted in a slender hot-bed, covered with a frame and glasses during bad weather, by which means they flower earlier, and often form many tubers at the joints. They are chiefly planted for the sake of variety.

PLATE XV.

1. CHELONE OBLIQUA.

RED-FLOWERED CHELONE.

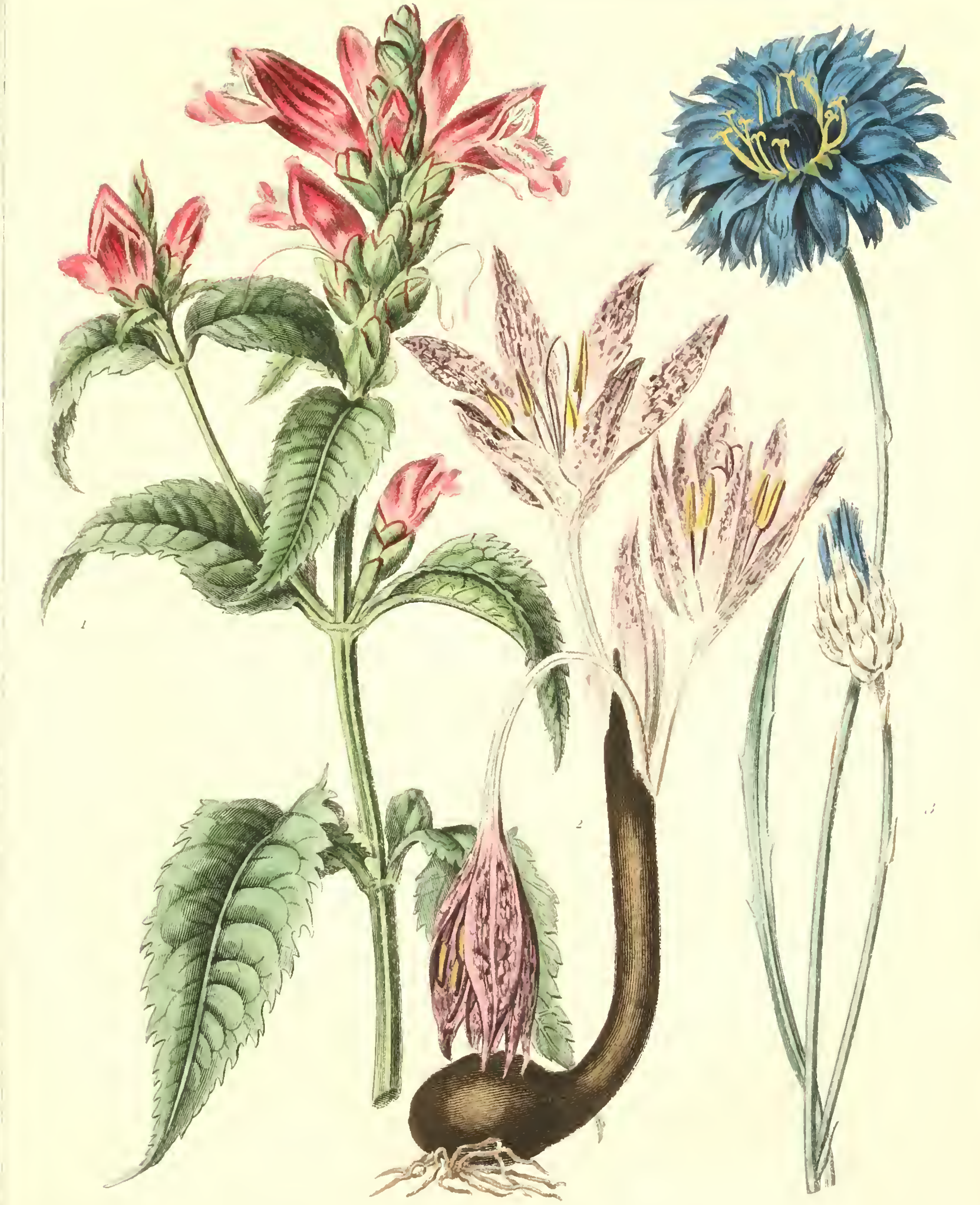
This genus comprehends plants of the flowery herbaceous perennial kind.

It belongs to the class and order *Didynamia Angiospermia*, and ranks in the natural order of *Personatæ*.

The characters are: that the calyx is a one-leafed, five-parted, very short, permanent perianthium: divisions erect and ovate: the corolla monopetalous and ringent: tube cylindric, very short: throat inflated, oblong, convex above, flat beneath: border closed, small: upper lip obtuse, emarginate; lower almost equal to the upper, very slightly trifid: the stamina consist of four filaments, hid beneath the back of the corolla; the two side ones a little longer: the anthers incumbent: the rudiment of a fifth filament, like the point of a dagger, between the upper pair of stamens: the pistillum is an ovate germ: style filiform, situation and length of the stamens: the stigma is obtuse: the pericarpium is an ovate capsule, two celled, longer than the calyx: the seeds very many, roundish, surrounded with a membranous rim.

The species cultivated for ornament are: 1. *C. glabra*, White Smooth Chelone; 2. *C. obliqua*, Red Oblique-leaved Chelone; 3. *C. hirsuta*, Hairy Chelone; 4. *C. penstemon*, Forking Chelone.

The first has a pretty thick jointed root, which creeps under ground to a considerable distance, sending up smooth channelled stalks, which rise about two feet high, with two leaves at each joint, standing opposite without foot-stalks; these are three inches and a half long, and about three quarters of an inch broad at their base,



Painted by Syd Edwards

London Publiſhed Sep 1st 1805 by G Kearsley Fleet Street

Sc

1 *Chelone obliqua*
Red flowered Chelone

2 *Colchicum autumnale*
Autumnal Crocus

3 *Catananche cœrulea*
Blue Catananche

where they are broadest, diminishing gradually to a sharp point; they have small serratures on their edges, which scarcely appear. The flowers grow in a close spike at the end of the stalks; are white, and almost like those of the Foxglove. It is a native of North America.

According to some, it varies with white flowers, with rose-coloured flowers, with red flowers, and with purple flowers.

In the second species, the roots do not creep so far as those of the first: the stalks are stronger, the leaves much broader, and oblique; they are deeply sawed on their edges, and stand upon short foot-stalks; the corolla is of a bright purple colour, and consequently makes a finer appearance than the above sort. It is a native of Virginia.

The third species resembles the first; but the stalks and leaves are very hairy, and the flower is of a purer white. It is a native of New England.

Some assert this to vary with white flowers, with blue flowers, with red flowers, and with purple flowers.

The fourth has a cylindric, pubescent, upright stem, a foot and half high, putting out several side branches: the leaves are oblong-lanceolate, ending in a point: the flowers in short loose spikes from the divisions of the stalks, and of a purple colour. It is a native of North America.

They all flower in the autumn, from September to November.

Culture.—The mode of propagation in the three first species is by the roots, which multiply easily, being parted in autumn, or early in spring, and planted where they are to remain: but the fourth sort must be raised annually from seed, by sowing it in autumn as soon as perfectly ripened.

The plants rise the following spring, and may be planted out in the borders during the summer months. They are hardy plants, and succeed in most soils and situations.

All these plants have a very ornamental effect for some time in autumn, after the principal bloom of most others is over; and, from being of different colours, produce much variety when planted in the borders of pleasure-grounds.

2. COLCHICUM AUTUMNALE.

AUTUMNAL CROCUS.

This genus comprehends plants of the perennial flowering bulbous-rooted kind.

It belongs to the class and order *Hexandria Trigynia*, and ranks in the natural order of *Spathaceæ*.

The characters are: that there is no calyx (except scattered spathes): the corolla six-parted: tube angulated, rooted; divisions of the border lance-ovate, concave, erect: the stamina consist of six subulate filaments, shorter than the corolla: anthers oblong, four-valved, incumbent: the pistillum is a buried germ within the root: styles three, thread-form, length of the stamens: stigmas reflex, channelled: the pericarpium is a three-lobed capsule connected internally by a suture, obtuse, three-celled, sutures gaping inwardly: the seeds many, nearly globular, and wrinkled.

The species cultivated are: 1. *C. autumnale*, Common Meadow Saffron; 2. *C. montanum*, Mountain Meadow Saffron; 3. *C. variegatum*, Variegated Meadow Saffron.

The first has a bulbous root, about the size and shape of the tulip, but not so sharp-pointed at the top; the skin or cover is also of a darker colour: these bulbs are renewed every year; for those which produce the flowers decay, and new roots are formed above: the flowers come out in autumn; these arise with long slender tubes from the root, about four inches high, shaped like those of the saffron, but larger: the number of flowers is generally in proportion to the size of the roots, from two to seven or eight: in March the green leaves appear, these are commonly four to a full-grown root; they are folded over each other below, but spread open above ground, standing cross-ways: they are of a deep green, and when fully grown are five or six inches long, and one and a half broad. The seed-vessel comes out from between the leaves in April, and the seeds ripen in May, after which the leaves soon decay. It is a native of most parts of Europe.

There are varieties, with white flowers; with striped flowers; with broad leaves; with striped leaves; with many flowers; with double purplish flowers; with double white flowers; with many white flowers. The double sorts are chiefly cultivated in the garden.

The second species has a smaller root, with a darker coat: the leaves come up soon after the flowers decay, and continue green all winter; long, narrow, and spread on the ground, decaying in June: the flowers are of a reddish purple colour, and appear from August to September. It is a native of Spain, &c.

In the third the leaves are smaller than those of the common sort, for the most part three in number, and of a paler and fresher green colour, lying close upon the ground, broad at the bottom, a little pointed at the end, waved about the edges: the root is not so large as that of the common sort: the flowers are smaller, but very beautiful, whitish, with deep blue or purple spots. It is rather tender, and blows about October or November. It is a native of the Greek islands.

Culture.—These plants are increased by dividing the bunches of their roots at the time their leaves decay, in the latter part of the summer; as from the latter end of June till the middle of the following month, planting the separated bulbs or off-sets to the depth of about three inches.

They are sometimes planted in beds, in rows at eight or ten inches asunder; but they may be dispersed in the fronts of borders and clumps with success.

It is of advantage to take up and divide the bunches of root-bulbs every two or three years.

New varieties may be raised from seed sown in boxes, or large pots, in autumn, covering it a quarter of an inch deep, and placing them in a warm situation till spring, when the plants will appear, which should have only the morning sun during summer, giving water in dry weather; and in the second summer, when their leaves decay, planting them out to flower, either in beds, or other methods.

They are of a hardy nature, and produce a fine effect, by their curious growth, as well as flowers, in the autumn and winter seasons.

3. CATANANCHE CÆRULEA.

BLUE CATANANCHE.

This genus contains a plant of the herbaceous perennial flowery kind. Candia Lion's-foot.

It belongs to the class and order *Syngenesia Polygania Æqualis*, and ranks in the natural order of *Compositæ*.

The characters are: that the calyx is common imbricate, turbinate; leaflets very many, loosely incumbent, acute, scariose; the squamule ovate-acuminate, concave, lax, glossy and permanent: the corolla is compound, generally imbricate, uniform; corollets hermaphrodite, very many; the exterior ones longer.

Proper monopetalous, ligulate, linear, truncate, five-toothed: the stamina consist of five capillary filaments, very short: the anthers are cylindric, and tubular: the pistillum is an oblong germ: the style filiform, length of the stamens: the stigma bifid and reflex: there is no pericarpium: the calyx unchanged: the seeds solitary, turbinate-ovate: down from a five-awned calycle: the receptacle is chaffy.

The species chiefly cultivated is *C. cærulea.*

It is perennial, sending out many long, narrow, hairy leaves, which are jagged on their edges. Between the leaves the flower-stalks come out, which are in number proportioned to the size of the plant; as from an old thriving root there are frequently eight or ten, and young plants seldom send out more than two or three. These stalks rise near two feet high, dividing into many small branches upward, with leaves like those below, but smaller, and have few or no jags on their edges; each of the peduncles is terminated with single heads of flowers, of a blue colour, having a dry, silvery, scaly calyx.

It is a native of the south of Europe, flowering from July to October.

There is a variety with double flowers.

Culture.—It is increased by sowing the seeds in the early spring, on the borders where the earth is light: the plants when sufficiently strong may, some of them, be removed into pots; but they flower best when left where sown. The double sort is best increased by slipping the roots and planting them out either in the early autumn or spring seasons; but in this way the roots should not be divided into too small parts, as that prevents their sending up a sufficient number of stalks for flowering.

These are very ornamental plants for the borders or clumps, where sufficiently dry, warm, and protected, as they continue several years.

Some plants may likewise be preserved in pots, to set out in assemblage with other potted plants.

PLATE XVI.

1. CONVALLARIA MAJALIS.

LILY OF THE VALLEY.

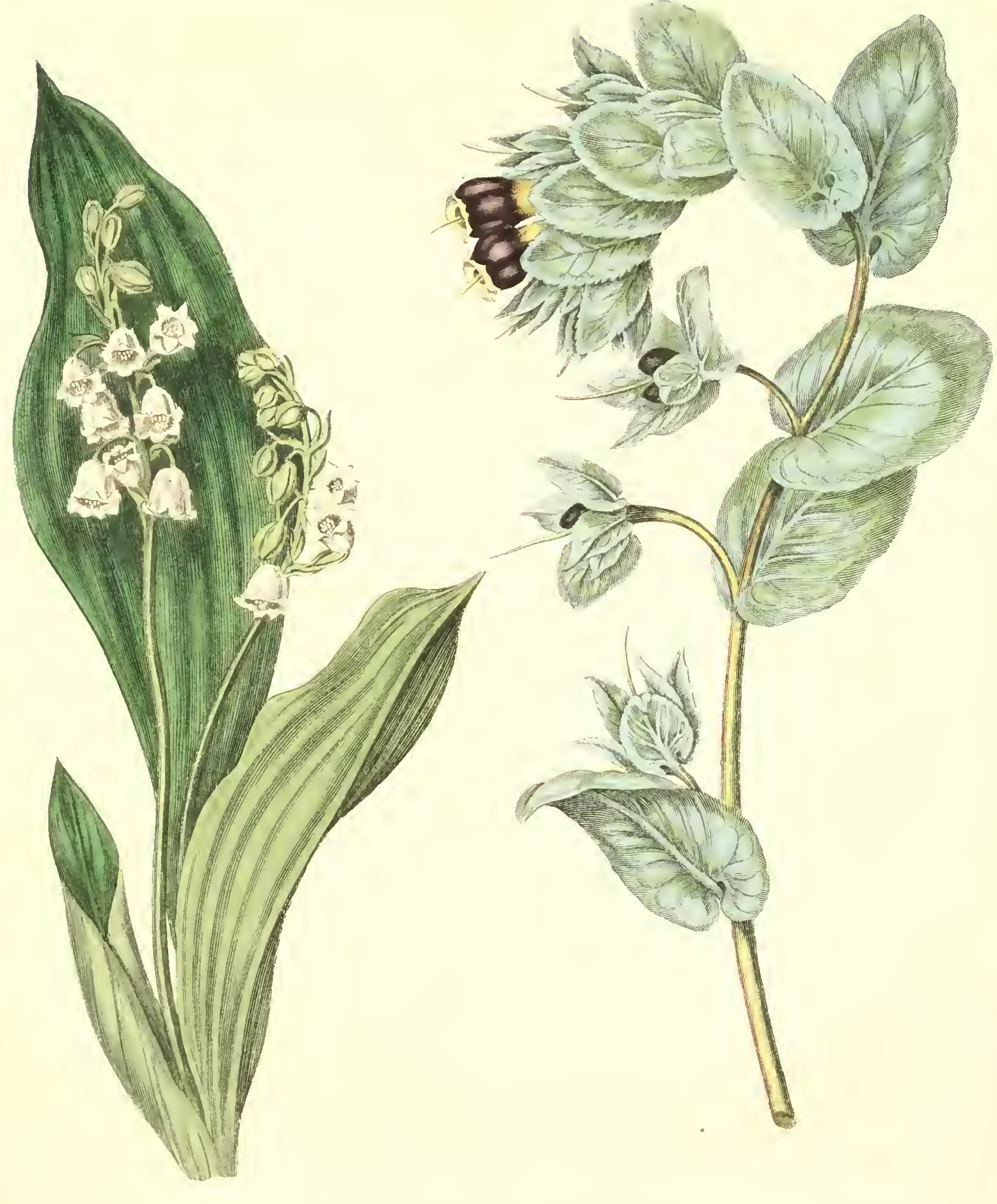
This genus contains plants of the hardy herbaceous perennial flowery kind. Lily of the Valley, and Solomon's Seal.

It belongs to the class and order *Hexandxia Monogynia*, and ranks in the natural order of *Sarmentaceæ*.

The characters are: that there is no calyx: the corolla is monopetalous, bell-shaped, smooth: border six-cleft, obtuse, open reflected: the stamina consist of six subulate filaments, inserted into the petal, shorter than the corolla: anthers oblong erect: the pistillum is a globose germ: style filiform, longer than the stamens: stigma obtuse, three-cornered: the pericarpium is a globose berry, three-celled, before maturity spotted: the seeds are solitary or in pairs, and roundish.

The species cultivated are: 1. *C. maialis*, Sweet-scented Lily of the Valley; 2. *C. polygonatum*, Single-flowered Solomon's Seal; 3. *C. multiflora*, Many-flowered Solomon's Seal; 4. *C. verticillata*, Narrow-leaved Solomon's Seal; 5. *C. racemosa*, Cluster-flowered Solomon's Seal.

The first has a perennial root, with numerous round fibres transversely wrinkled, creeping horizontally just below the surface to a considerable distance. The whole plant is smooth. Four or five alternate, oblong, blunt, slightly nerved, purplish scales surround and bind together the base of the leaves and stalk. There are two leaves, petioled, elliptic or lanceolate, pointed at each end, from four to five inches long, and near an inch and half broad in the middle, quite entire, upright, smooth, nerved, one usually larger, of a



Painted by Syd Edwards London Published April 1 1809 by G Kearsley Fleet Street Engraved by F Sansom

1 Convallaria majalis
Lily of the Valley

2 Cerinthe major
Great Honey wort

bright green colour; petioles clasping, round, the outer dotted with red, and tubular, to receive the inner, which is solid. Scape lateral, the length of the leaves, upright, smooth, semi-cylindrical. The flowers from six to eight, in a raceme, nodding, white, and fragrant. It is a native of Europe; flowering in May. Hence it is termed May, and sometimes Conval Lily.

There are varieties with narrower leaves, with broader leaves, with double variegated flowers; with double reddish or red flowers; with double white flowers.

The second species has a twisted root, full of knot: on a transverse section of it characters appear that give it the resemblance of a seal, whence the name of Solomon's Seal. The stem is from a span to near a foot in height, of a harder texture than the third species: the leaves are simple, inclined, angular, twisted, sometimes three-edged, four inches long and one broad, oval-lanceolate, half embracing the stem, glaucous underneath, frequently bending down on one side. The flowers sweet-scented, generally solitary, but sometimes two, on long axillary peduncles, much larger than in the third sort. The berries are black. It is a native of the North of Europe.

It varies with double flowers, &c.

The third has a round stem, from eighteen inches to two or three feet high, erect and unbranched: leaves usually bent upwards, and to one side, underneath glacous, five inches long and two broad; the lower ones oval, the upper oval-lanceolate, half embracing the stem. The flowers are several together (from two or three to seven or eight), axillary, on branched compressed peduncles. The berries round, of a blackish blue colour, purple and red.

This is a larger plant than the second sort. It is a native of the North of Europe.

There are varieties with double flowers.

The fourth sort has a perennial root, toothed: the stem is simple, angular, striated, erect, eighteen inches high. The leaves narrower than the other sorts, lanceolate, entire, smooth, three or four in a whorl, three or four inches long, and from half an inch to an inch in breadth, bright green, and glaucous beneath. The peduncles are axillary, solitary, branched, pendulous, and from two to six-flowered. The flowers of a greenish white colour. The berries violet or deep red. It flowers in June; and is a native of the North of Europe, &c.

The fifth species has the stems two feet high, unbranched, with many oblong leaves embracing them at the base, resembling the leaves of Plantain. The flowers are small and white, and are produced in single spikes at the top, and are succeeded by small red berries, about the same size as in the first sort. It flowers the beginning of June, and is a native of Virginia, &c.

Culture.—In all these sorts of plants their culture may be effected by parting their roots, either in the autumn or spring months, but the former is the better season, planting them out where they are to remain. They afterwards only require to be kept free from weeds, and removed every three or four years, according as their roots may be increased.

As they succeed best in rather shady situations, they are well suited for affording variety and ornament in shady places, such as the borders or the sides of walks in woods and wilderness parts of pleasure-grounds, producing considerable variety by the singularity of their growth and the beauty of their foliage and flowers. They also grow well in many other situations that are more open.

2. CERINTHE MAJOR.

GREAT HONEY-WORT.

This genus furnishes plants of the hardy, ornamental, flowering, annual kind. The Honeywort.

It belongs to the class and order *Pentandria Monogynia*, and ranks in the natural order of *Asperifoliæ*.

The characters are: that the calyx is a five-parted perianthium; divisions oblong, equal, permanent: the corolla is monopetalous and bell-form: tube short, thick: border tube-bellied, rather thicker than the tube: mouth five-cleft; throat naked, pervious: the stamina consist of five, subulate filaments, very short: anthers acute, erect: the pistillum is a four-parted germ: style filiform, length of the stamens: stigma obtuse: there is no pericarpium: calyx unchanged the seeds two, bony, glossy, sub-ovate, outwardly gibbous, and bilocular.

The species cultivated is *C. major*, Great Honeywort.

It rises with stems eighteen inches high and more, round, smooth, branching, and leafy: the leaves are glaucous, becoming blue by age, smooth, without prickles, but ciliated about the edge, and dotted with white: the branches are leafy and nodding; with flowers among the leaves, hanging on long peduncles: the tube of the corolla is yellow, but the border purple. It is a native of Italy, flowering in June and the two following months.

There are varieties with smooth leaves and purple flowers, and with prickly leaves and yellow flowers.

Culture.—The plants are raised by sowing the seeds annually in the autumn or early spring months in patches in the borders, clumps, or other parts. The autumn sowings should be made as early as possible. They also rise from the self-sown seeds. They should be managed as other hardy annuals. These are plants proper for being planted out about the apiary, or in the small beds or borders.

PLATE XVII.

1. CHELIDONIUM GLAUCUM.

YELLOW-HORNED POPPY.

This genus furnishes a plant of the hardy herbaceous flowery kind.

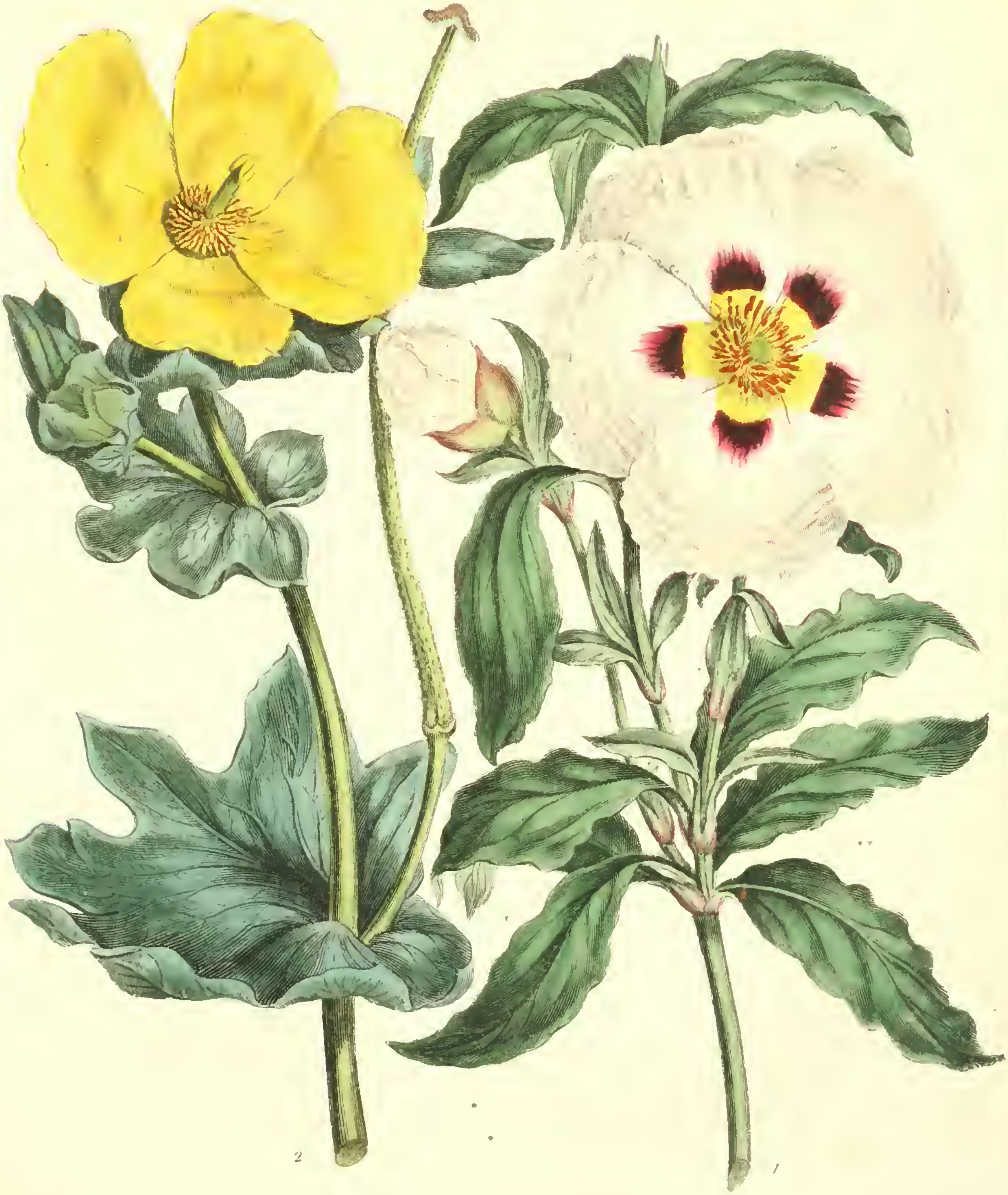
It belongs to the class and order *Polyandria Monogynia*, and ranks in the natural order of *Rhoeadeæ*.

The characters are: that the calyx is a two-leaved roundish perianthium: leaflets subovate, concave, obtuse, caducous: the corolla has four roundish flat petals, spreading, large, narrower at the base: the stamina consist of very many filaments (thirty), flat, broader at top, shorter than the corolla: the anthers are oblong, compressed, obtuse, erect, and twin: the pistillum is a cylindric germ, the length of the stamens: there is no style: the stigma headed and bifid: the pericarpium is a cylindric silique, sub-bivalve: the seeds very many, ovate, increased, and shining: the receptacle linear, between the valves of a kind of circumambient suture, not gaping.

The species worthy of cultivation as an ornamental plant is *C. glaucum*, Sea Celandine, or Yellow-horned Poppy.

It has a strong stem: the root-leaves are pinnatifid, waved, variously lobed, and indented; pinnas gradually larger upwards; hairy on both sides: stem-leaves embracing, deeply indented, rough above, smooth beneath: the branches are dichotomous: the flowers are of a scarlet colour, and succeeded by long horn-shaped pods. The root, according to some, is annual, but others assert it to be perennial.

Culture.—These plants are raised from seed, which should be sown either in the autumn or spring where the plants are to remain;



[illegible] Lond. Publish'd [illegible] Fleet Street

2 *Chelidonium Glaucium*
Yellow Horned Poppy

1 *Cistus Ladaniferus*
Gum Cistus

or they may be raised in a seed-bed, and be afterwards planted out where they are to flower. Some seed should be sown annually, as the plants seldom continue longer than two years. It is hardy, and succeeds in almost any soil or situation.

The plants afford ornament and variety in the borders both from their flowery nature and the peculiarity of their long-horned pods.

2. CISTUS LADANIFERUS.

GUM CISTUS.

This genus affords plants of the shrubby evergreen kind. Rock Rose.

It belongs to the class and order *Polyandria Monogynia*, and ranks in the natural order of *Rotaceæ*.

The characters are: that the calyx is a five-leaved permanent perianthium: leaflets roundish, concave; of which two alternate ones are lower and smaller: the corolla has five petals, roundish, flat, spreading, very large: the stamina consist of numerous capillary filaments, shorter than the corolla: anthers roundish, small: the pistillum is a roundish germ: style simple, the length of the stamens: stigma flat, orbiculate: the pericarpium is a roundish capsule, covered with the calyx: the seeds numerous, roundish, and small.

The species are: 1. *C. populifolius*, Poplar-leaved Cistus, or Rock Rose; 2. *C. laurifolius*, Bay-leaved Gum Cistus; 3. *C. ladaniferus*, Spanish Gum Cistus; 4. *C. incanus*, Hoary Rock Rose, or Rose Cistus; 5. *C. halimifolius*, Sea Purslain-leaved Cistus; 6. *C. Monspeliensis*, Montpelier Gum Cistus; 7. *C. creticus*, Cretan Ladaniferous Cistus; 8. *C. albidus*, White-leaved Cistus; 9. *C. crispus*, Curled leaved Cistus: 10. *C. salvifolius*, Sage-leaved Cistus.

In this numerous genus there are other species that may equally deserve cultivation.

The first has a stiff, slender, woody stem, six or seven feet high, sending out many branches the whole length: these and the leaves are hairy; the calyxes also very hairy: but the branches and leaves, when further advanced, become naked: the leaves are large, of a light green colour, sessile, with many nerves: the flowers are produced at the ends of the branches, on naked peduncles: the corolla is white, and soon drops off; and the petals, according to Linnæus, are tinged with purple on their edges; the stamens yellow; and the calyxes, before they unfold, three-cornered in their appearance. It is a native of Portugal, flowering in June and July.

The second species rises with a strong woody stem, to the height of five or six feet, sending out many erect hairy branches: the leaves are lanceolate, acute, thick, dark green above, and white beneath, very glutinous in warm weather; but, according to Linnæus, wrinkled, green on both sides, and scarce visibly hairy; the petioles becoming purple at the base: the flowers are produced at the ends of the branches upon long naked peduncles, branching on their sides into smaller ones, each sustaining one large white flower with a hairy calyx. It flowers in June and July, and is a native of Spain.

The third grows to the height of five or six feet, with a strong woody stem, sending out many hairy branches: the leaves are smooth on their upper side, but veined on their under, on short foot-stalks which join at their base, where they form a sort of sheath to the branch: the corolla is white, the size of the officinal Poppy: the germ has ten swellings: stigma sessile, without any style. It is a native of Spain, &c. It flowers from June till August.

Mr. Curtis objects to the propriety of the name *ladaniferus*, as it is not the plant from which *ladanum* is produced, though in a warmer climate it affords a gum of a similar kind.

There are varieties with large white flowers, and a purple spot in the middle of the petal, and with entire white flowers.

The fourth species has a shrubby stem, branching to a large bushy head, three or four feet high: the branches villose; the leaves are not at all nerved, ending in a point, a little flexuose in the disk, ending at the base in coalescent sheathing petioles, or rather obovate-spatulate; the lower more connate, and in a manner sheathing: the calyxes hairy, with subcordate leaflets: the petals purple, emarginate or obcordate, quite entire and concave. It is a native of Spain.

The fifth species is an upright shrub, three or four feet high: the branches are round, ash-coloured, angular at top, the younger ones dotted with yellow: the leaves are petioled, opposite, lanceolate, very white, scarcely soft, without veins, obtuse, flat, about an inch in length: the peduncle terminating, compound, white; supporting three or four bright yellow flowers, which appear in June and July. It is a native of Portugal.

There are varieties with numerous leaves and sulphur-coloured flowers, and with yellow flowers with purple spots in their bases.

The sixth rises with a slender stem, from three to four feet high, sending out many hairy branches from the bottom upwards: the leaves are very dark green, in warm weather covered with a glutinous sweet-scented substance: the peduncles, which come out at the ends of the branches, are long, naked, and sustain many white flowers, rising above each other; their calyxes are bordered, and end in sharp points. It flowers from June to August, and is a native of Narbonne.

There is a variety with olive-shaped leaves and sulphur-coloured flowers.

The seventh species is branching, diffused, a foot and half high and more: the stem and branches round, and somewhat villose: the leaves from broad stem-clasping, petioled, first spatulate, then ovate or lanceolate, somewhat acute, wrinkled, sometimes waved, roughish, thickish, quite entire, viscid, closely set on both sides and round the edge with white hairs of different lengths, some simple, others branched or headed, scarcely visible to the naked eye: peduncles one-flowered, terminating the last leafy twigs, erect and villose: the flowers of a rose-purple colour: these appear in June and July, and the seeds ripen in September. It is a native of the Levant.

This is the species from which the drug called *ladanum* is procured.

The eighth has a shrubby stem, branching from bottom five or six feet in height: much resembling the fourth, but differing in the branches being tomentose, not hairy: the leaves paler, soft, horizontal, sessile, by no means either petioled or sheathing, broad-lanceolate, mostly three-nerved: the flowers long from the branches, of a bright purple colour: it is a native of Narbonne, &c.

In the ninth, the branches are weak, slender, woody, spreading horizontally: it is seldom more than two or three feet in height: the peduncles and calyxes are covered with a thin wool: the flowers are of a purple or white colour, appearing in June and the following month. It is a native of Portugal.

The tenth has a slender, smooth stem, covered with a brown bark, never rising more than three feet high, and sending out many weak branches, spreading horizontally. The leaves are obtuse, without veins, not so soft as in many other species: the peduncles lateral, solitary, one-flowered, longer than the leaves: the corolla is white, and somewhat smaller than that of the other rock-roses. It flowers from June to August, and is a native of Italy, &c.

Culture.—All these sorts are capable of being either raised by seeds or cuttings in common earth, or on hot-beds; but the seed method produces the best plants. The seeds should be sown in the early spring, in a warm border near half an inch deep, and the plants will come up in six weeks; or, to render them more forward, in pots, and plunged in a moderate hot-bed. When the plants are of some growth, they should have the full air in mild weather, and frequent waterings, as well as occasional shade from the sun, while young; and when an inch or two high, some may be planted out separately in small pots, others in rich borders, occasional shade and water being given during summer. In autumn the potted plants should be removed to a frame, to have shelter from frost. Those in the full ground should also be shielded in frosty weather with mats. In spring, those remaining in the seed-bed should be planted out, and those in pots shifted into larger ones; to be continued another winter, and in the spring following be planted where they are to remain.

In the latter method, cuttings, five or six inches long, should be planted in beds of rich earth, occasional shade and water being given. When well rooted, they should be removed into separate pots: but by being planted in pots in spring, and plunged in a hotbed, they are rendered much forwarder. In other respects they require the same management as the seedlings.

These are beautiful evergreen shrubs, effecting a fine variety at all seasons, both from their leaves being of different figures, sizes, and shades of green and white, and their being very profuse in most elegant flowers, which though of short duration, there is a daily succession of new ones for a month or six weeks on the same plant; and when these different species are employed, they exhibit a constant bloom for near three months.

They are mostly hardy enough to prosper in the open ground in any dry soil; and if they have a sheltered situation it will be an advantage, as in open exposures they are rather subject to injury from very severe frost; for which reason a plant or two of each sort should be potted, to have shelter in winter in the green-house.

The second and fifth are the most tender sorts.

In shrubbery borders and clumps they should be placed towards the fronts, in assemblage with other choice shrubs of similar growth. All the sorts should be suffered to assume their own natural growth; the straggling branches being only cut in with a knife.

PLATE XVIII.

1. CRASSULA COCCINEA.

SCARLET-FLOWERED CRASSULA.

This genus contains plants of the succulent kind for the greenhouse and stove. Lesser Orpine, or Live-Ever.

It belongs to the class and order *Pentandria Pentagynia*, and ranks in the natural order of *Succulentæ*.

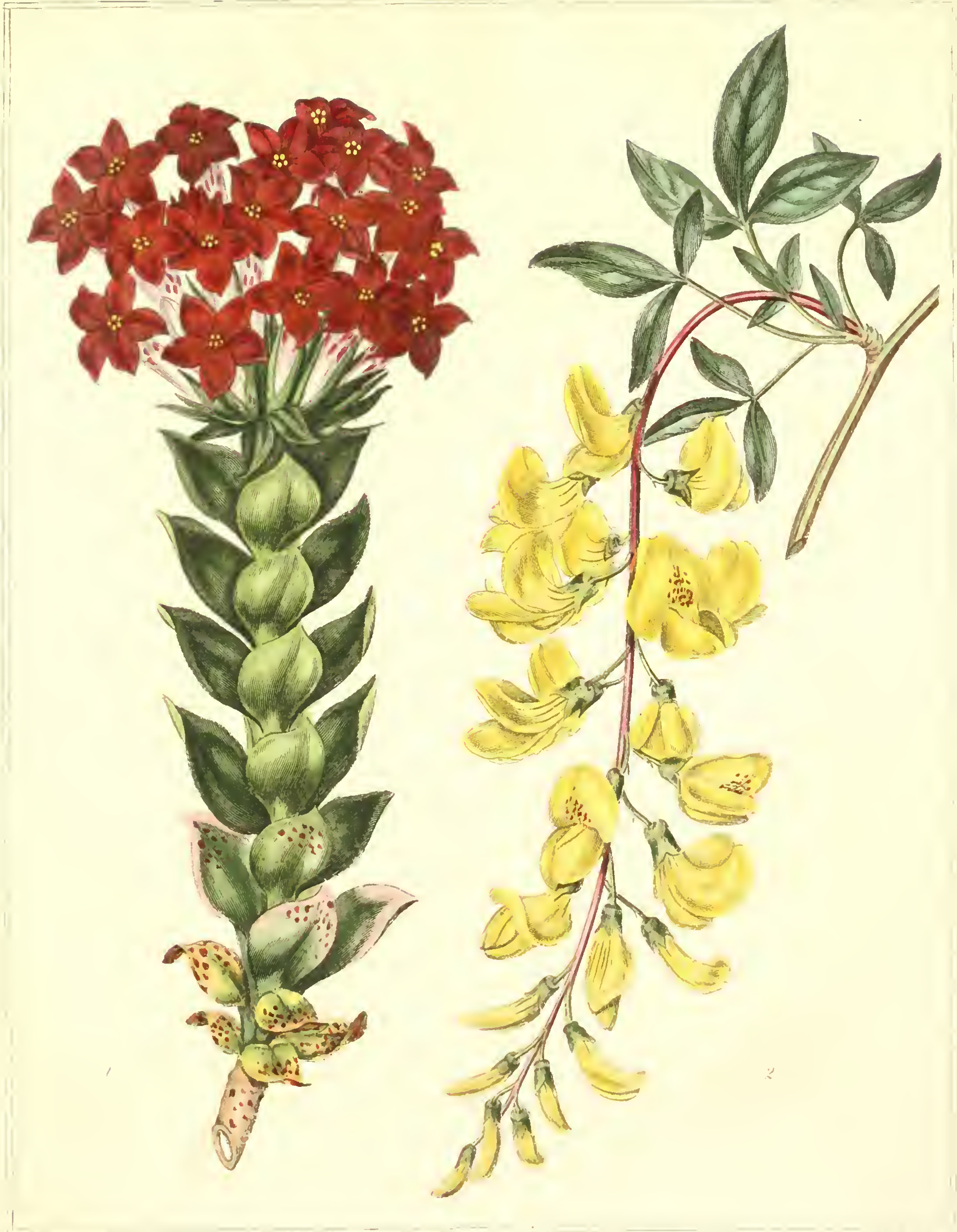
The characters are: that the calyx is a one-leafed perianth, five-cleft; divisions lanceolate, channelled-concave, erect, acute, converging into a tube, permanent: the corolla has five petals, claws long, linear, straight, converging, connected at the base with the ovate bractes at the border, reflex-expanding: nectaries five; each with a very small emarginate scale, annexed outwardly to the base of the germ: the stamina consist of five subulate filaments, length of the tube, inserted in the claws of the corolla: anthers simple: the pistillum has five germs, oblong, acuminate, ending in subulate styles the length of the stamens: stigmas obtuse: the pericarpium consists of five capsules, oblong, acuminate, straight, compressed, gaping inwards lengthwise: the seeds many and small.

The species are: 1. *C. coccinea*, Scarlet-flowered Crassula; 2. *C. perfoliata*, Perfoliate Shrubby Crassula; 3. *C. cultrata*, Sharp-leaved Crassula; 4. *C. punctata*, Dotted-leaved Crassula; 5. *C. nudicaulis*, Naked-stalked Crassula; 6. *C. orbicularis*, Starry Crassula.

There are several other species that may be cultivated.

The first has a reddish jointed stem, about three feet high, dividing at top into many irregular branches: the leaves so closely opposite, as to appear to be in four rows: the flowers at the ends of the

Pl.18



Painted by Syd Edwards London Publiſhed June 1 1810 by G. Kearsley Fleet Street Engraved by [illegible]

1 Craſsula coccinea
Scarlet flower'd Craſsula

2 Cytisus Laburnum
Laburnum

branches in close umbels, of a fine scarlet colour. It flowers in July and the following month.

The second species rises with an upright stem ten or twelve feet high, if it be not broken or injured, but requires support; the stems being slender, and the leaves very weighty: the latter are about three inches long, thick, succulent, pale green, acute, hollowed above, and having a convex ridge beneath: the flowers terminating in large clusters, of a whitish herbaceous colour, with short tubes, and the brim cut into five parts. The flower-stalk is thick and succulent, generally turning first downwards, then upwards again, somewhat in the form of a syphon. It flowers in July, but does not produce seeds in this climate.

The third has a weak succulent stalk, about two feet high, sending out many irregular branches: the leaves thick, plain above, convex beneath, deep green, the borders set with a few silvery hairs: the stalk which supports the flowers rises from the top of the branches, and is from four to six inches long, putting out several side branches, which grow erect; these are terminated by large clusters of small greenish flowers, which appear in June and the following month, but the flower never fully expands.

In the fourth species, the stems are very slender, full of joints, and trailing: the leaves thick, succulent, heart-shaped, connate, grayish, in a double row, hollow dotted: the stems are divided, grow about eight or nine inches long, and are terminated by clusters of small white flowers, sitting very close to the top: these appear in spring, and again in the latter part of summer.

The fifth never rises with a stalk, but the leaves come out close to the ground, forming a sort of head; they are smooth, somewhat hairy, set with excavated dots, succulent, taper, ending in points, and frequently put out roots. Out of the centre of these arises the flower-stalk, branching into two or three shoots at top, each terminated by clusters of greenish flowers, which do not open. It flowers in May, and sometimes again towards the latter part of summer.

The sixth species is a low perennial plant, having open spreading heads, very like those of some sorts of Houseleek, growing on the ends of very slender trailing stalks, produced in plenty on every side the parent plant, as on the Childing Marigold. The flower-stalks arise from the centre of these heads; are naked, about four inches long, and terminated by close clusters of herbaceous flowers: the leaves are radical, forming roses, ovate, fleshy, gibbous, even, sharpish, ciliate backwards, with cartilaginous, very slender hairs: the root puts forth lateral threads, which are filiform and decumbent, forming runners at the end. It flowers sometimes in May, but usually in July and August.

Culture.—The first three sorts may be easily increased, by planting the cuttings of the stems and branches in the later spring and summer months, after having been exposed in a dry situation for a few days, to heal over the cut parts, in pots filled with sandy earth, plunging them in the bark-bed of the stove, or in a frame shaded from the sun. When well rooted, they should be removed into separate pots, and replaced in the same situations till fully established, when they may be removed into the greenhouse, where they should have a sunny situation in winter, and but little water.

The other species may be increased by planting the off-sets from the roots in the same manner as above.

As these are plants of a succulent nature, both in their stems, branches, and leaves, as well as of curious growth, they afford variety among collections of other plants of similar kinds. They are capable of bearing the open air in summer, in dry warm situations.

2. CYTISUS LABURNUM.

LABURNUM.

This genus contains plants of the hardy evergreen and deciduous flowering shrubby kinds.

It belongs to the class and order *Diadelphia Decandria*, and ranks in the natural order of *Papilionaceæ*.

The characters are: that the calyx is a one-leafed perianthium, bell-form, short, obtuse at the base: mouth two-lipped; upper-lip two-cleft, acuminate; lower three-toothed: the corolla is papilionaceous: standard ovate, rising upwards, sides reflex: wings the length of the standard, straight, obtuse: the keel somewhat bellied, acuminate: the stamina consist of diadelphous filaments, (single and nine-cleft) rising upwards: anthers simple: the pistillum is an oblong germ: style simple, rising upwards: stigma obtuse: the pericarpium is an oblong legume, obtuse, attenuated at the base, stiff: the seeds few, kidney-form, compressed.

The species are: 1. *C. Laburnum*, Laburnum; 2. *C. sessilifolium*, Common Cytisus; 3. *C. hirsutus*, Hairy or Evergreen Cytisus.

The first has a large upright tree-stem, branching into a full-spreading head, from ten to twenty feet high, having smooth greenish branches, trifoliate, oblong-oval entire leaves, on long slender foot-stalks; and from the sides of all the branches numerous yellow flowers collected in long spikes, hanging loosely downward; appearing in May. It is a native of Switzerland.

The varieties are: theCommon broad-leaved; the Narrow-leaved; Long-spiked, having very long pendulous spikes of flowers; the Short-spiked, having short, roundish, thick spikes of flowers; and the Variegated-leaved Laburnum.

The second species rises with a woody stalk, putting out many branches, covered with a brownish bark: the leaflets are obovate, ternate, on very short petioles: the flowers in close short terminating racemes, of a bright yellow colour: it rises to the height of seven or eight feet, and becomes very bushy. It is a native of the South of Europe.

The third has a soft shrubby stalk, dividing into many branches, which grow erect, and frequently rise to the height of eight or ten feet: the stalks, branches, and leaves are very hairy; the leaves are ternate, ovate, and placed closely on the branches: the flowers come out from the side of the stalk in short racemes, and are of a pale yellow, appearing in June. It is a native of the South of Europe.

Culture.—These plants are all capable of being increased by seeds, and many of them by cuttings and layers.

In the first mode the seed should be sown, either on beds or where the plants are to remain, in the spring, as about March, being in the first mode, when of sufficient growth, transplanted into nursery rows, to remain till of a proper size for being planted in the situations where they are to grow. When sown where they are to remain, they only require to be kept perfectly free from weeds, and trimmed to one good plant in a place, giving the tender sorts the protection of mats during the severity of the winter season.

The trees of most of the sorts afford seeds in abundance in the autumn.

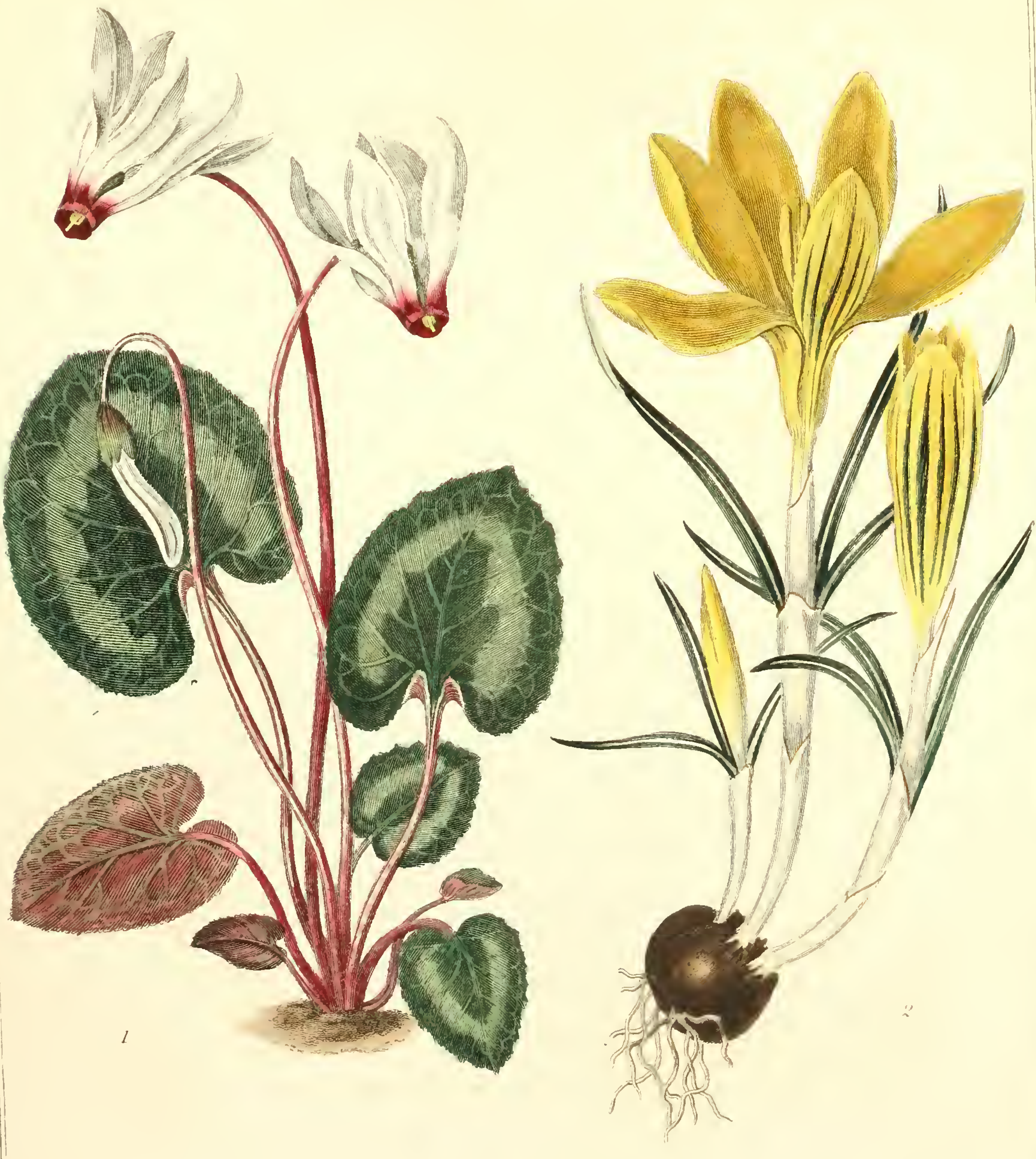
The cuttings should be made from the young shoots ten or twelve inches in length, and planted out in a rather moist, shaded situation, either in the early autumn or spring months, in rows twelve or eighteen inches apart, and eight or ten in the rows. They mostly become well rooted in the course of twelve months; and should then be kept perfectly clear of weeds.

Layers may be laid down either in the summer, autumn, or spring seasons; and when the plants are well rooted they should be taken off and planted out in nursery-rows, as described above.

In the nursery they only require to be preserved from the injury of weeds, and to have the land dug well between the rows annually in the autumn, till they are removed; being suffered to take their natural growth in a great measure.

Most of the sorts are hardy, and succeed well in almost any soil or situation. The third sort should have a dry soil and sheltered situation, as it is liable to be injured by frost. It may also be planted in pots, and placed in the green-house during the winter.

They are all very ornamental plants for the borders, clumps, and other parts of ornamented grounds, affording much variety by their numerous beautiful bunches of flowers. The large sorts should be placed towards the back parts, and those of less growth towards the fronts and more conspicuous parts.



Painted by Syd Edwards

London Published Feb 1 1806 by G Kearsley Fleet Street

Engraved by F. Sansom

1 Cyclamen persicum
Persian Cyclamen

2 Crocus Vernus
Spring Crocus

PLATE XIX.

1. CYCLAMEN PERSICUM.

PERSIAN CYCLAMEN.

This genus contains plants of the low, herbaceous, flowery, perennial tuberous-rooted kind. Snow-Bread.

It belongs to the class and order *Pentandria Monogynia*, and ranks in the natural order of *Preciæ*.

The characters are: that the calyx is a half-five-cleft perianthium, roundish, permanent: divisions ovate: the corolla one-petalled: tube somewhat globose, twice as large as the calyx, small, nodding: border bent upwards, five-parted, very large: divisions lanceolate: neck prominent: the stamina consist of five very small filaments in the tube of the corolla: anthers straight, sharp, in the neck of the corolla, converging: the pistillum is a roundish germ: style filiform, straight, longer than the stamens: stigma sharp: the pericarpium is a globose berry, one-celled, gaping five ways at the top, covered with a capsular shell: the seeds very many, somewhat ovate, cornered: the receptacle ovate and free.

The species cultivated are: 1. *C. Europæum*, Common Cyclamen; 2. *C. Coum*, Round-leaved Cyclamen; 3. *C. Persicum*, Persian Cyclamen; 4. *C. hederæfolium*, Ivy-leaved Cyclamen.

The first has a tuberous root, oblately spheroidal, white within, brown without; from which proceeds, within the ground, a very short stem, and from that the leaves and one-flowered peduncles or scapes: the leaves are kidney-form, roundish, very blunt, slightly crenulate, deep green, and spotted above; beneath commonly red purple, smooth, on very long round red petioles: the flowers drooping, sweet-scented, and purple. It is a native of Austria.

The second species has a round, solid, tuberous root, and low naked stem, furnished with plain orbicular leaves, and short weak petioles; the under side of the leaves very red in the beginning of winter, but that colour goes off in the spring; the upper side smooth, of a lucid green, spreading flat open: the flowers are very bright purple, appearing in the middle of winter. It is a native of the South of Europe.

There are varieties with purplish flowers, and with flesh-coloured flowers.

In the third, the leaves are stiff, on strong fleshy petioles, near six inches long, of a purple colour, as are also the veins of the leaves underneath; but the upper side is veined and marbled with white: the corolla is pure white, with a bright purple bottom. It flowers in March and April, and the seeds ripen in August.

There are varieties with entire white sweet-scented flowers, and with veined and marbled leaves, with pale purple flowers, and bright red or purpled bottoms.

The fourth has a large, orbicular, compressed root: the leaves are numerous on petioles six or seven inches long, marked with black in the middle: the flowers appear before them on long fleshy scapes about August; soon after which the leaves come out, continue growing all the winter and spring till May, when they begin to decay. After the flowers are fallen, the peduncles twist up like a screw, inclosing the germ in the centre, and lie close to the ground among the leaves, which serve as a protection to the seed, which ripens in June. It is a native of Italy.

There are varieties with white and with purplish flowers.

Culture.—These plants are all capable of being increased by sowing the seeds in large wide pots, tubs, or boxes, filled with good light mould, mixed with a little sand, in the latter end of summer or beginning of autumn, covering them to the depth of about half an inch, exposing them at first in situations that have only the morning sun, but afterwards removing them into more warm and sunny exposures; and as the winter approaches, placing them under the protection of frames and glasses, or some other contrivance, fresh air being freely admitted when the weather is mild and suitable. In this way some plants of the hardy sorts will appear about the beginning of the following year, and of all the kinds in the spring. During the beginning of summer, when the weather is hot and dry, slight waterings should be given occasionally; but when their leaves begin to decline in the latter end, they should be removed to an eastern aspect, with only the morning sun, and, as their roots are then in an inactive state, have little or no water. They should be kept free from weeds in the autumn, and have some fresh mould applied over the surfaces of the pots or tubs in which they grow, protecting them again in the winter as before, continuing the same management as in the preceding year, till the decline of the leaves in the latter part of the summer, when they should be carefully taken up, and the more hardy sorts planted out in the situations where they are to remain, as those of a warm, dry border; and the tender kinds removed into pots, to have protection from frosts in winter.

As the Persian sort is the most impatient of cold and moisture, it should constantly be kept in pots filled with light sandy earth, or a compost of loam and lime-rubbish, and be placed in such situations in the frame or green-house as to have as much free air as possible in mild weather in winter. Some of the sorts will generally begin to flower in the course of one or two years after being thus planted out; the first kind often about Christmas, which is succeeded by those of the Persian sort.

The plants in the borders should have the protection of mats or other contrivances, in severe winters, as by such means they produce a greater abundance of flowers, and these more fair and beautiful.

The varieties of the different sorts are best preserved and continued by planting pieces of the divided roots, immediately after they have been separated in the summer season, in pots, tubs, or other places, as above: but in this mode they do not increase in an expeditious manner.

These plants are very ornamental, though of small growth, in their variegated large foliage, as well as their elegant flowers, which in some of the sorts are fragrant, as those of the spring kinds.

The hardy sorts produce a fine effect in the fronts of borders or clumps in pleasure-grounds, and those of the tender kinds among other potted plants in the green-house.

The proper period of removing these plants for any purpose is about the beginning of June, when the leaves decline; but they should not be often removed, as the roots do not lose their fibres as in some others of the tuberous and bulbous rooted kinds.

2. CROCUS VERNUS.

SPRING CROCUS.

This genus comprehends plants of the low-flowering ornamental bulbous-rooted perennial kind.

It belongs to the class and order *Triandria Monogynia*, and ranks in the natural order of *Ensatæ*.

The characters are: that the calyx is a one-leafed spathe: the corolla a simple, long tube: border six-parted, erect: divisions ovate-oblong, equal: the stamina consist of three subulate filaments, shorter than the corolla: anthers sagittate: the pistillum is an inferior, roundish germ: style filiform, length of the stamens: stigmas three, convolute, serrate: the pericarpium is a roundish capsule, three-lobed, three-celled, three-valved: the seeds several, and round: the corollets six-parted, equal: stigmas convolute.

The species are: 1. *C. officinalis*, Autumnal or Common Officinal Crocus; 2. *C. vernus*, Spring Crocus.

The first has a roundish bulbous root, as large as a small Nutmeg, a little compressed at the bottom, and covered with a coarse, brown, netted skin; from the bottom of the bulb many long fibres are sent out, which strike pretty deep into the ground; the flowers come out at the upper part of the root, which, with the young leaves, whose tops just appear, are closely wrapped about by a thin spatha or sheath, which parts within the ground, and opens on one side: the tube of the flower is very long, arising immediately from the bulb, without any foot-stalk, and at the top is divided into six ovate obtuse segments, which are equal, and of a purple blue colour. In the bottom of the tube is situated a roundish germ, supporting a slender style, which is not more than half the length of the petal, crowned with three oblong golden stigmas, spreading asunder each way, which is the Saffron. It flowers in October, and the leaves continue growing all winter; but it never produces seeds in this climate. It is supposed by Martyn to be a native of Asia.

The chief varieties are: the Sweet-smelling with a smaller, and more compressed root, having a deep blue colour, but varying to a sky-blue: the Mountain, which has a flower of a paler blue colour; the Many-flowering bluish, with numerous sky-blue flowers; and the Small-flowering, having a small deep blue flower.

The second species has a pretty large compressed bulb, covered with a light brown, netted skin, from which arise four or five leaves of a purplish colour on their lower parts: from among these come out one or two flowers, sitting close between the young leaves, never rising above two inches high, and having an agreeable odour. From the centre of the tube a slender style proceeds, which is crowned by a broad flat stigma of a golden colour. After the flower is past, the germ pushes out of the ground. In the wild state, it is most commonly white, with a purple base. It is a native of Italy, &c.

The chief varieties are: the broad-leaved purple variegated, which has a flower of a deep blue colour, and striped; the broad-leaved plain purple; the broad-leaved violet-coloured, or large deep blue; the white with a purple bottom; the broad-leaved white variegated; the broad-leaved with many violet-purple flowers striped with white; the broad-leaved ash-coloured; the broad-leaved large yellow; the broad-leaved small pale yellow; the broad-leaved small yellow striped with black; the narrow-leaved small brimstone; and the narrow-leaved small white.

In modern catalogues, many other varieties of different colours are introduced' as blue and purple, yellow and white, or striped. New ones are also continually imported from Holland. The usual varieties at present in gardens are: the beautifully striped Scotch; the blue; the blue striped; the white; the yellow of several shades, larger and smaller; the yellow striped with black; the cloth of gold, &c.

Culture.—The culture in both these sorts is easily effected, by planting the bulbs or off-sets taken from the roots; the first sort in July, or the beginning of the following month, and the latter any time when the weather is open, from September to the beginning of April in the following year; but the more early it is performed, the stronger they flower; by means of a dibble or trowel, to the depth of about two inches, the ground being previously well dug over, and left some time to settle. They may be set either in beds by themselves in rows, at the distance of eight or nine inches, and six or eight inches apart, or in patches of five or six roots in each, on the fronts of the clumps, borders, or other parts of gardens and pleasure grounds, putting them in a varied manner, both in respect to the sorts, and the order in which they are planted.

Where the soils are tolerably dry, they may remain two or three years without being disturbed, but should then be taken up at the time the leaves decay, in order to separate the new bulbs or off-sets for further increase, as well as to new dig the ground. The larger bulbs should be separated from the small ones, and put up, each by themselves, in order to be planted at the proper season; the former in the above manner, and the latter in beds in rows six inches distant, to remain till they are of a proper size.

As the bulbs increase fast, a large stock may with care soon be provided. But when this is not practised, bulbs of the different species and varieties may easily be procured from the nursery and seeds-men.

In the culture of these plants, great injury is frequently done by trimming off the green leaves at the time the flowers decline, in order to prevent litter; as by such means the future blow is rendered more weak and less beautiful.

Where new varieties are wanted, recourse must be had to the seed, which must be sown in the spring season, either where the plants are to remain, in a bed of light mellow earth, or in pots filled with the same sort of earth.

The first species is the plant which is cultivated in fields, and from the stigma of which the preparation known under the title of English Saffron is made.

PLATE XIX.*

1. DAHLIA PINNATA.

PURPLE DAHLIA.

2. DAHLIA CROCATA.

YELLOW DAHLIA.

This genus was established by the late Cavanilles, in honour of Dr. Andrew Dahl, a Swedish botanist, and the friend of Baron Alstræmer.

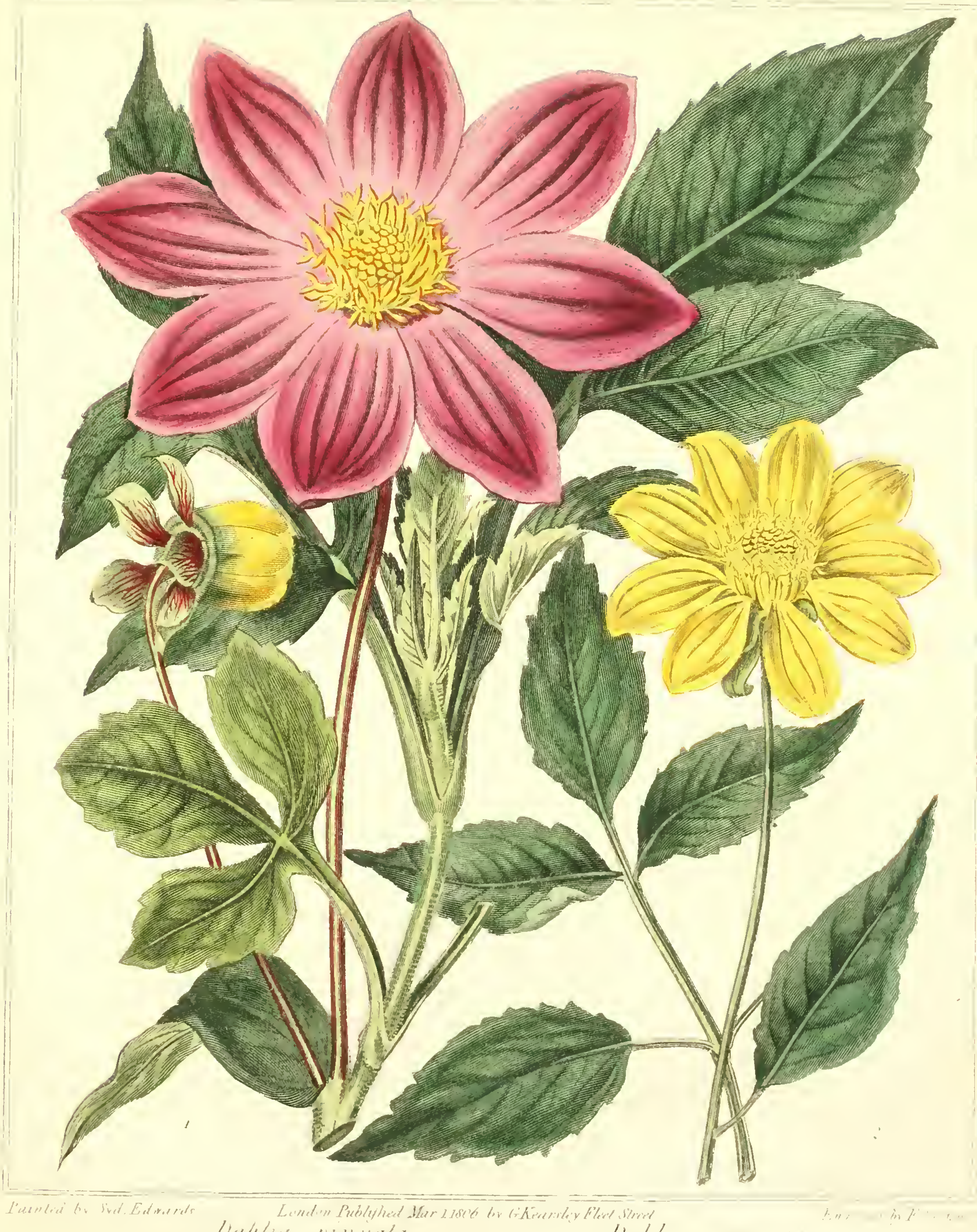
It belongs to the class and order *Syngenesia Polygamia Frustranea*, at least in this cold climate.

The stems die every winter, but the root is perennial and tuberous, not very dissimilar to that of the Artichoke.

Four species have been described.

1. *Pinnata*, pinnated as it is called, and figured by Cavanilles in his *Ic. Pl. v.* 1. *tab.* 80. It is also figured under this name in the 4th vol. of Andrews's *Bot. Repository*. In the *Annales du Mus. National Hist. Nat. v.* 3. M. Thouin calls this species *Purpurea*, but its colour varies from the common *Pinnata*, being very deep; and Mr. R. A. Salisbury suspects that this *Purpurea* of Thouin is the true *Rosea* of Cavanilles. A paler coloured variety of the *Pinnata*, the seeds of which were sent to Holland-House with the name of *Rosea* by Cavanilles, has been lately figured by Mr. Hooker in the *Paradisus Londinensis*, and described by the above-mentioned botanist, under the name of *Sambucifolia:* that it is not the true *Rosea* of Cavanilles, *Ic.* is unquestionable; for the leaves were simply pinnate, not bipinnate.

2. *Rosea*, Rose-coloured. It is so called and figured by Cava-



Painted by Syd. Edwards   London Publiſhed Mar 1.1806 by G.Kearſley Fleet Street   Engraved by F. [illegible]

1 Dahlia pinnata
Purple Dahlia.

2 Dahlia crocata
Yellow Dahlia

nilles in his *Icones;* but the plant called *Rosea* by Mr. Thouin in the *Annales*, is most probably the very variety of the first species figured by the name of *Sambucifolia* in the *Paradisus Londinensis.*

3. *Coccinea*, Scarlet. This is figured in Curtis's publication; but we entertain a doubt if it is the same with Cavanilles's plant, if the colour is well copied. The plant, we understand, is dead.

4. *Crocata*, Saffron-coloured. This plant is not mentioned in any work previous to the *Paradisus Londinensis*, where it is figured and described by the name of *Bidentifolia.* Though the parcels of seeds which came from Cavanilles himself had the title of *Crocata*, the flowers turned out yellow.

It is not intended here to describe minutely these plants; it is sufficient to say, that they elevate themselves majestically like the Holy-hock, and bear both axillary and terminal showy flowers late in the autumn.

Culture.—The first Dahlias introduced into England were lost by taking too much care of them. As they are natives of the hilly parts of Mexico, they will thrive in the open ground very well, and accustom themselves in a very few generations to ripen seeds here annually. By giving the history of those plants which have grown in the gardens of Holland-House, Kensington, it is only meant to offer hints for their culture, leaving the rest to future experience and observation.

On the 20th of May, 1804, the Right Honourable Lady Holland sent home from Spain a parcel of seeds. Though so late in the season, part of them were sown in pots in a hot-bed, and among these was the *Dahlia Pinnata*, with a wrong name on the parcel. When the plant was about fourteen inches high, it was planted in the open ground and grew luxuriantly, pushing up several stems to the height of seven and eight feet. The *Coccinea* and *Crocata*, the seeds of which also came up, but did not grow so full. In the middle of September the first flowers appeared, by which the plant was known to be the *Pinnata* of Cavanilles, and it was figured by Mr. Andrews the same year. The seeds did not ripen, and the roots were taken up on the approach of a sharp frost, and placed in the green-house in a pot for the winter.

In the spring of 1805 all the parcels of seed sent from abroad were sown, and many Dahlias came up among them, which at the time of flowering showed four distinct species or varieties. It seems that Cavanilles, and the French botanists after him, mean to make as many species as there are different coloured Dahlias; but the learned Mr. Salisbury, one of the Vice Presidents last year of the Linnean Society, considers them all simply as varieties of only two distinct species, and has in the *Paradisus Londinensis* named them, not according to their colour, but after the differences of their leaves, being inclined to believe that they will in time vary like the China Aster and Marygold.

And, in fact, with regard to the *Dahlia Pinnata*, now commonly called *Purpurea,* we have great reason to confirm that botanist's suspicion, having seen nine different varieties of it, either in the colour or multiplication of the petals. The flower, in its natural state, has only eight *ligulated* petals: a few had twelve. There was also one plant with archdouble flowers, exceedingly pale: another with archdouble flowers, exceeding deep purple, exactly like that figured in the *Annales du Mus.* but the flowers were so complicated together, and the autumn of 1805 so cold, they never expanded. We must observe, that the leaves of this plant were bipinnated, but whether it is a real distinct species is not yet positively ascertained.

The *Dahlia Rosea* was in the year 1805 the most handsome, and ripened plenty of seeds. The *Purpurea* ripened fewer and weaker seeds, though they now (10th May, 1806) come up freely; the plants, however, look weak. Of the seeds of *Coccinea* and *Crocata,* no plants have yet appeared, though to the eye they seemed as perfect as those imported from Spain.

All the plants of 1805, except one, were taken up before Christmas, and planted in pots or large pans; but though kept in a very cold green-house, they began to push new shoots in the middle of April, and will be planted in the open ground without the help of any artificial heat. Some rich mould round the roots is the only culture they require. The plant left all the winter out of doors was situated close to a south wall; and though it had no covering of any kind, it is now pushing up new shoots. It is necessary to add, that several plants of Dahlias have been raised by cuttings, which are now in good health, and which will probably flower and produce seeds next autumn.

10th July, 1806. Above a hundred plants of Dahlias are now growing in various parts of the gardens at Holland-House in the highest luxuriance: among them are several of the yellow-flowered *Bidentifolia*, raised from seeds saved there last year, though the autumn proved so unfavourable. One plant of the *Purpurea* of Andrews's Bot. Repository is already showing flowers.

The true *Rosea* of Cavanilles, with doubly pinnated leaves, is also growing most vigorously, and one of its stems has been pinched to produce lateral shoots for cuttings. A plant left in the middle of one of the borders of the French garden at Holland-House by mistake, and exposed to the severity of the winter, without any shelter, is as strong and vigorous as any of the other two-year old plants; so that there is not a doubt that this magnificent genus will soon be a common ornament of the gardens in this island.

In plate 19* is a representation of a plant of the *Dahlia Pinnata*, or *Purpurea*.

PLATE XX.

1. DAPHNE CNEORUM.

TRAILING DAPHNE.

This genus comprises plants of the low shrubby ornamental, evergreen, and deciduous kinds.

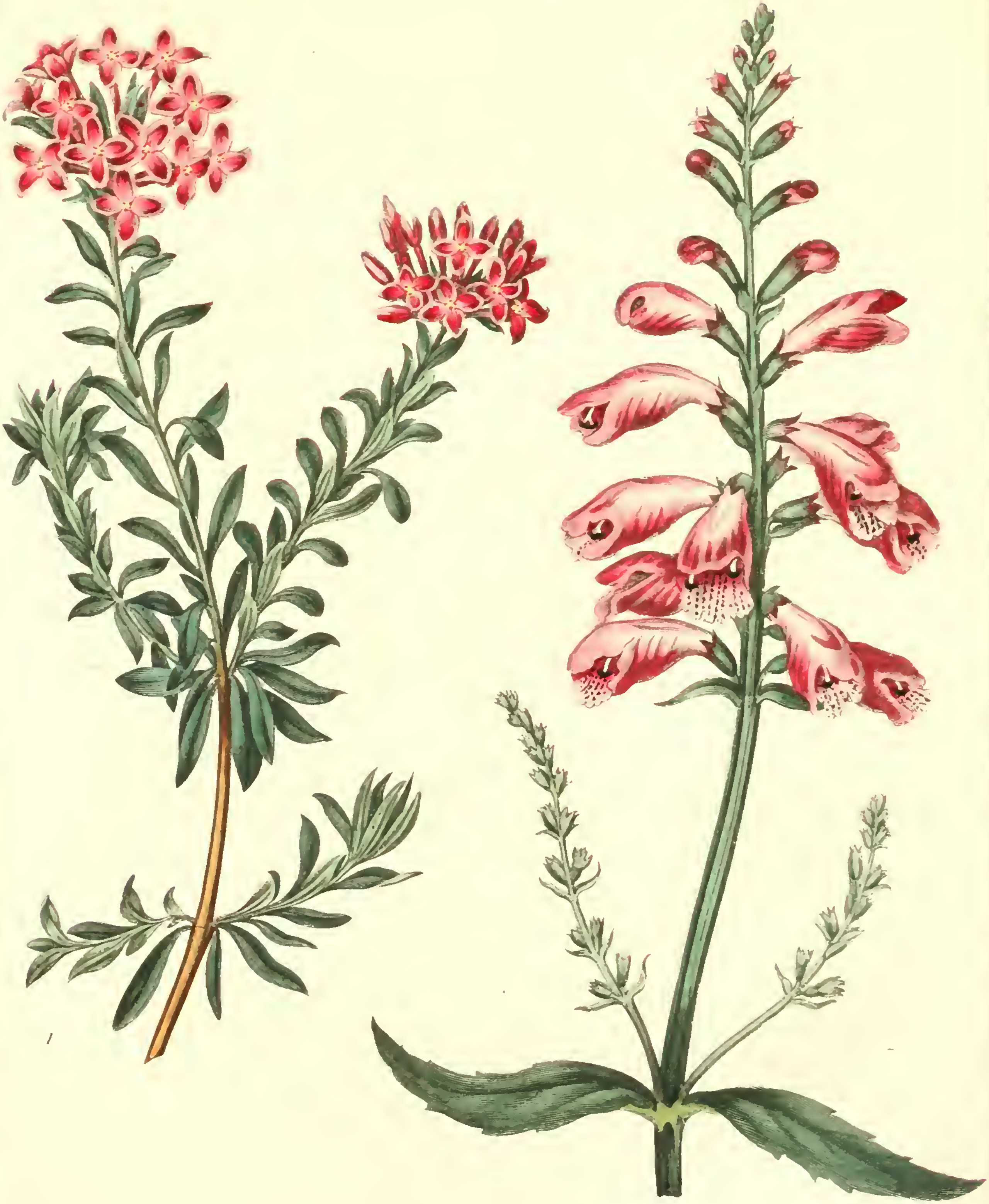
It belongs to the class and order *Octandria Monogynia*, and ranks in the natural order of *Veprecula*.

The characters are: that there is no calyx: the corolla one-petalled, funnel-form, withering, including the stamens: tube cylindric, imperforate, longer than the border: border four-cleft; divisions ovate, acute, flat, spreading: the stamina have eight, short filaments, inserted into the tube; the alternate ones lower: anthers roundish, erect, two-celled: the pistillum is an ovate germ: style very short: stigma headed, depressed-flat: the pericarpium a roundish one-celled berry: (drupe berried superior;) the seed single, roundish, fleshy.

The species are: 1. *D. Mezereum*, Mezereon: 2. *D. Laureola*, Wood or Spurge Laurel; 3. *D. tartouraira*, Silvery-leaved Daphne, or Tartouraira; 4. *D. cneorum*, Trailing Daphne; 5. *D. odora*, Sweet-smelling Daphne.

The first is a shrub, growing to the height of from three or four to five or six feet, with a strong woody stalk, putting out many woody branches on every side, so as to form a regular head. The leaves are smooth, about two inches long, and three quarters of an inch broad in the middle, placed without order. The flowers come out very early in the spring, before the leaves, in clusters all round the shoots of the former year. The fruit is a superior berried drupe, first green, then red, of an ovate-globular form; with a thin succu-

Pl 20



Painted by Sydᵈ Edwards

London Published Dec 1 1805 by G Kearsley Fleet Street

1 *Daphne Cneorum*
Trailing Daphne

2 *Dracocephalum virginianum*
Virginian Dragons head

lent pulp, and a crustaceous, thin, brittle, black shining shell. It is a native of Lapland, &c. flowering in January, in mild seasons.

Martyn remarks, that there are two principal varieties; one with a white flower, succeeded by yellow berries; the other with peach-coloured flowers and red fruit: the latter has sometimes flowers of a much deeper red: and that there is also a variety with variegated leaves.

The second species is a low evergreen shrub, rising with several stalks to the height of two or three feet, dividing at top into several branches. The leaves come out irregularly on every side, sit pretty close to the branches, are thick, smooth, and of a lucid green. Among these, towards the upper part of the stalks, come out the flowers in small clusters; they are of a yellowish green colour, and appear soon after Christmas if the season be not very severe. They are succeeded by oval berries, which are green till June, when they ripen and turn black, soon after which they fall off. It is a native of Britain, &c.

The third species is a low shrubby plant, which sends out several weak stalks from the root, about a foot long, and spreading about irregularly; these seldom become woody in England, but are tough and stringy, covered with a light bark: the leaves are small, very soft, white and shining like satin, and sit pretty close to the stalks between these, white flowers come out in thick clusters, commonly two or three together, very seldom solitary, bell-shaped, silky on the outside, but yellowish within, imbricated at the base with four or more ovate keeled scales. It is a native of the South of France.

The fourth species is a very humble shrub, seldom more than one foot high: the stems are branched; the leaves narrow lanceolate, placed without order: the branches terminated by small clusters of purple flowers, which stand erect: the flowers emit a pleasant odour, and appear early in the spring. It is a native of France, &c.

It varies with white flowers.

The fifth has the stem becoming shrubby, dichotomous, smooth, naked, erect; the branches, like the stem, from divaricate erect: the leaves at the top of the last branchlets, approximating, sessile, acute.

quite entire, spreading, bent back at the tip; deep green on the upper surface, with a groove along the middle, paler underneath; unequal, thick, evergreen, an inch in length: the flowers about eleven in number, of a purple colour. It is a native of Japan, flowering here from December to March.

Culture.—These plants are capable of being raised in different methods according to the kinds.

The first sort and varieties are best propagated by sowing the seeds or berries, as soon as they have become perfectly ripe, as about August, on beds of light sandy earth, covering them in to the depth of half an inch. When possible, a south-easterly aspect should be chosen. And to preserve the seeds in a perfect state, the shrubs should be netted in the latter end of the summer, to prevent the attacks of the birds.

The young plants generally appear in the following spring, when they should be kept clear from weeds, and the largest ones removed when too close together: they may remain in these beds till the beginning of the second autumn, when they should be removed, and set out in nursery-rows, at the distance of a foot and half, and ten or twelve inches in the rows, great care being taken not to break or injure their roots. After they have had two years growth in these situations, they are in a proper condition for being planted out where they are to remain: and as the plants flower very early in the spring, the best time for removing them is in the early part of the autumn.

The plants grow to the greatest size, and flower in the most full and perfect manner, when the soils are of a dry quality: as in moist, adhesive soils they are apt to become mossy.

The second species may be increased by sowing the seeds in the same manner as the above; and also by cuttings and layers of the young shoots: these should be planted out or laid down in the beginning of the autumn, and in the following autumn they will be well rooted: the layers may be then taken off, and planted where they are to remain, or put into nursery-rows as above. The cuttings may likewise be treated in the same way.

The third and fourth sorts succeed best when raised from seed procured from abroad, and sown on a warm dry situation, in the early autumn, in the places where the plants are to remain, as they do not bear transplanting well. The ground should be as little as possible stirred about the plants. The former should have a dry warm aspect where the land is poor, but the latter succeeds in such as are more cool: these plants are sufficiently hardy to succeed in the open air, when the winters are not very severe.

The last sort is raised by sowing the seeds procured from its native situation, on a gentle hot-bed in the autumn or spring, and when the plants are of sufficient growth removing them into separate pots, to be placed under the protection of the greenhouse. It is much more tender than the other sorts.

The first and second kinds are highly ornamental plants in the clumps, borders, and other conspicuous parts near the house, the former flowering early, and where many are together affording a fine fragrance.

The other sorts, though more tender, are curious, and afford an agreeable variety in assemblage with others of similar growth, either in the borders or among potted plants.

2. DRACOCEPHALUM VIRGINIANUM.

VIRGINIAN DRAGON'S HEAD.

This genus comprehends plants of the herbaceous, annual, and perennial kind.

It belongs to the class and order *Didynamia Gymnospermia*, and ranks in the natural order of *Verticillatæ*.

The characters are: that the calyx is a one-leafed perianthium, tubular, permanent, very short: the corolla one-petalled, ringent: tube length of the calyx: throat very large, oblong, inflated, gaping, a little compressed on the back: lip superior straight, arched, complicated, obtuse: lip inferior three-cleft; lateral divisions upright, as it were the segments of the throat; the intermediate one hanging down, small, prominent forwards at the base, roundish, emarginate: the stamina consist of four subulate filaments, hid beneath the upper lip of the corolla, of which two are a litte shorter: anthers somewhat cordate: the pistillum is a four-parted germ: style filiform, in the situation of the stamens: stigma two-cleft, sharp, slender, reflex: there is no pericarpium: calyx cherishing the seeds in its bottom: the seeds four, ovate-oblong, three-sided.

The species chiefly cultivated are: 1. *D. Virginianum*, Virginian Dragon's Head; 2. *D. Canariense*, Canary Dragon's Head, or Balm of Gilead; 3. *D. Austriacum*, Austrian Dragon's Head; 4. *D. Ruyschiana*, Hyssop-leaved Dragon's Head; 5. *D. Moldavica*, Moldavian Dragon's Head, or Balm.

There are other species that deserve cultivation.

The first is a perennial plant. It rises with an upright stalk, near three feet high. The leaves are about three inches long, and half an inch broad, sessile; usually in pairs at each joint, but sometimes there are three together. The flowers are purple, in terminating spikes. It is a native of North America, flowering from July to September.

The second species is also a perennial plant, rising with several stalks to the height of three feet or more, becoming woody at the lower part; the leaves at each joint having three or five oblong, pointed, serrate leaflets.—The flowers come out in short thick spikes on the top of the stalks; they are of a pale blue colour. It is a native of the Canary Islands, flowering at the same time as the first.

The third has likewise a perennial root. The stalks are hairy, a foot and half high, sending out several side-branches. The leaves are hairy, linear, cut into three parts. The flowers terminating in short whorled spikes, with some very narrow leaves (bractes) under each whorl. It is a beautiful plant, growing naturally in Austria, &c.

In the fourth the root is perennial. The stems about two feet high, with two smooth linear leaves at each joint, about an inch long, and one-eighth of an inch broad, with a deep furrow along the middle: at each joint, at the other sides of the stem, come out two or three very narrow small leaves of the same shape. The flowers are in spikes, of a fine blue colour. It is a native of Norway, flowering in June.

The fifth is an annual plant, rising with branching stalks a foot and half high, with oblong leaves, deeply serrate on their edges. The flowers come out in whorls round the stalks at every joint; are blue, and appear in July, continuing to the middle of August. It has a strong balsamic odour, which to some is very agreeable. It is a native of Moldavia.

Culture.—These plants are raised in different methods, according to the kinds.

The first sort is best propagated by parting the roots and planting them out in moist, sheltered, shady situations, either in the autumn or spring.

In the second kind the plants are best raised by sowing the seeds in pots of good mould in the autumn, protecting them by means of a frame and glasses during the winter. When the plants have some growth they may be removed into separate pots, and placed in the open air during the summer, but brought under the shelter of a green-house or garden-frame in the winter; the latter is probably the better practice.

They may likewise be increased by planting cuttings of the young shoots in a warm shady spot during the summer. These, when they have formed good roots, should be removed into pots, to be protected under glasses during the winter.

They require a pretty full exposure to the air when the weather is suitable, being sufficiently hardy to stand the open air in mild winters.

The third and fourth species may be raised by sowing the seeds in the early spring months, in a bed of earth in an open exposure, or in pots. When the plants have attained sufficient growth they should be removed into a spot of fresh light earth, and planted out six inches apart, proper shade and water being given, till they become rooted, or into separate pots. If the pots be plunged in a moderate hot-bed it will greatly forward them.

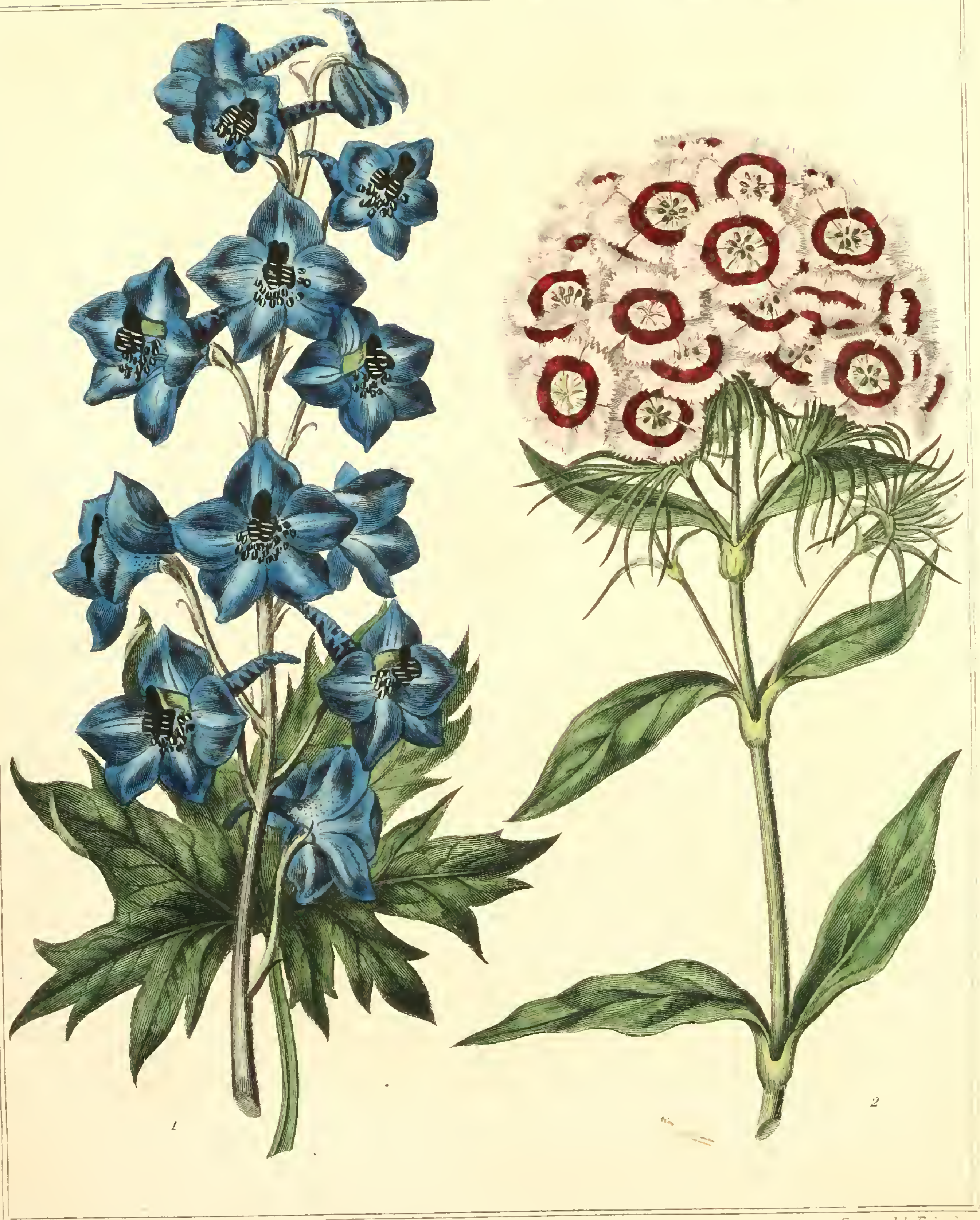
They must be kept free from weeds till the autumn, in the first situation, when they should be taken up with good balls to their roots, and be planted out in the borders or other parts, where they are to remain. They may also be increased by planting cuttings of the branches in summer, in a shady spot, or in large pots, giving them shade and water, and afterwards removing them into other pots.

The fifth species must be raised annually by sowing the seeds in patches, in the places where the plants are to remain, in the spring. When the plants appear, they should be properly thinned, and kept perfectly free from weeds.

All the sorts, except the second, may be employed for ornament in the beds or borders of gardens and pleasure-grounds; some of them affording a fine smell, as well as pretty effect in their flowers. They should be raised almost annually, in order to keep good plants.

The second kind is chiefly introduced among green-house collections, both for variety and the fragrant balsamic smell which it affords.

Pl. 21



Painted by Syd Edwards

London Publiſhed Nov 1 1805 by G Kearsley Fleet Street

Engraved by F Sanſom

1 Delphinium elatum
Larkspur

2 Dianthus barbatus
Sweet William

PLATE XXI.

1. DELPHINIUM ELATUM.

LARKSPUR.

This genus comprises plants of the herbaceous flowery hardy annual and perennial kinds. Dolphin Flower.

It belongs to the class and order *Polyandria Trigynia*, and ranks in the natural order of *Multisiliquæ*.

The characters are: that there is no calyx: the corolla has five petals, unequal, disposed in a circle; of which the uppermost in some is more obtuse than the rest in front, and is extended behind into a tubular, straight, long, obtuse horn: the rest ovate-lanceolate, spreading, nearly equal: nectary two-cleft, seated in front within the circle of petals on the upper part, behind stretched out, involved within the tube of the petal: the stamina have very many filaments (fifteen or thirty,) subulate, wider at the base, very small, inclined towards the petal: anthers erect, small: the pistillum consists of three or one germ; ovate, ending in styles the length of the stamens: stigmas simple, reflex: the pericarpium has as many capsules, ovate-subulate, straight, one-valved, gaping inwards: the seeds very many, and cornered.

The species mostly cultivated are: 1. *D. adjacis*, Upright Larkspur; 2. *D. grandiflorum*, Great-flowered Bee Larkspur; 3. *D. elatum*, Tall Bee Larkspur.

There are other species that may be cultivated.

The first is annual, and has the stalks eighteen inches and more in height, seldom branched: the leaves are finely divided, commonly by threes, on broad petioles: the segments are linear, quite entire, and channelled above; the spike of flowers erect, dense, and of different colours.

There are varieties with single and double blue flowers; with single and double purple flowers; with single and double silver-coloured flowers; with single and double violet-coloured flowers; with single and double ash-coloured flowers; with single and double striped flowers; Large Rocket Larkspur, and Dwarf or Rocket Larkspur.

The second species has a perennial root, which puts out two or three branching stalks every spring, rising about a foot and a half high: the leaves are smooth and of a light green colour above, and hoary beneath, composed of many narrow segments, which terminate in several acute points: the flowers come out towards the upper part of the stalks singly, each on a long naked peduncle; they are large, and of a fine azure colour. They appear in June and July, and the seeds ripen in autumn. It is a native of Siberia.

The third rises to the height of a man: the root is perennial: the leaves slightly villose, becoming smooth by age, half-five-lobed, petioled; lobes acute, often half-three-lobed, sharply serrate. The spikes of flowers very long and handsome, of a deep blue colour, with a wrinkled spur. It is a native of Switzerland, &c. flowering from June to September.

Culture.—These plants, in all the sorts and varieties, are propagated by sowing the seeds in the early spring, as in February, March, or the following month, or in the autumn immediately after the seeds become ripe, in the clumps, borders, or other places where the plants are to remain, as they do not succeed so perfectly by transplanting, in patches of eight or ten in a place, covering the seed in to the depth of nearly half an inch, the mould being previously rendered fine.

Where the annual sort and varieties are cultivated for a large show, the seed may be sown thinly in drills on beds four feet broad, at a foot distance, covering it in to the above depth. They are sometimes sown in other forms for the purpose of appearance.

The autumn sowings of these seeds should be marked by placing small sticks in the places, to prevent their being disturbed by the spring digging of the ground.

The only culture the plants in general require after they appear, is that of thinning them in a proper manner, according to circumstances, and keeping them free from weeds. And in the perenial sorts removing the stems in the autumn.

These plants afford much ornament and variety in the different compartments of pleasure-grounds, and they succeed in most soils and situations, being of hardy growth.

2. DIANTHUS BARBATUS.

SWEET WILLIAM.

THIS genus furnishes plants of the herbaceous flowery ornamental kind.

It belongs to the class and order *Decandria Digynia*, and ranks in the natural order of *Caryophyllei*.

The characters are: that the calyx is a cylindric perianthium, tubular, striated, permanent, five-toothed at the mouth, surrounded at the base with four scales, of which the two opposite are lower: the corolla has five petals, claws length of the calyx, narrow, inserted into the receptacle: border flat; the plaits outwardly wider, obtuse, crenate: the stamina consist of ten subulate filaments, length of the calyx, with spreading tips: anthers oval-oblong, compressed, incumbent: the pistillum is an oval germ: styles two, subulate, longer than the stamens: stigmas bent back, acuminate: the pericarpium is a cylindric capsule, covered, one-celled, gaping open at top four ways: the seeds a great many, compressed, roundish: receptacle free, four-cornered, shorter by half than the pericarpium.

The species chiefly cultivated in the garden are: 1. *D. barbatus*, Sweet William, or Bearded Pink; 2. *D. caryophillus*, Clove Pink, or Clove Gilliflower; 3. *D. deltoides*, Common or Madder Pink; 4. *D.*

plumarius, Feathered Pink; 5. *D. cæsius*, Gray-leaved or Mountain Pink; 6. *D. Chinensis*, China Pink; 7. *D. superbus*, Superb Pink.

The first has a perennial fusiform root: the stems are upright, jointed, smooth, a foot and half high, branched: the leaves, soft, veined, connate, from half an inch to almost an inch broad in the widest part, bright green; the bundles of flowers compact, umbelled, and sessile. These are of different colours, in different varieties. It is a native of Germany.

The principal varieties are: the Broad-leaved, or Sweet-Williams: the Narrow-leaved, or Sweet-Johns; with single and double flowers in each.

The chief of the sub-varieties in the first or *broad-leaved* kind are, with broad leaves and tall deep red flowers, with tall flesh-coloured flowers, with pure white flowers, with white dotted flowers, with striped leaves and red flowers, large double rose-coloured with sweet-scented flowers, large double with deep purple burster flowers, and with double variegated flowers.

In the second, or *narrow-leaved* sort, with narrow leaves and deep red flowers, with pale red flowers, with pale red and flesh-coloured flowers, with purplish white-eyed flowers, with snow-white flowers, with white and flesh-coloured flowers, with white and purple flowers, with white spotted flowers, and with red flowers and white borders, or Painted Lady Sweet-Williams.

It is observed by Martyn, that the broad-leaved sort, with very double flowers of a deep purple, inclining to blue, bursting the calyx, is not so much esteemed; but that the double Rose Sweet-William, with flowers of a fine deep rose-colour, and smelling sweet, is much valued, as it does not burst. The Mule, or Fairchild's Sweet-William, which is one of the narrow-leaved double sorts, supposed to have been produced from seeds of a Carnation impregnated by a Sweet-William; the flowers are of a brighter red than in either of the former; their bunches not quite so large, but the flowers have an agreeable smell. The narrow-leaved kind are in general the most productive of double flowers.

The second sort, in its natural state, has the root large, woody, and branched: the stems a foot or eighteen inches high, decumbent at bottom, jointed and branched: the leaves are glaucous, smooth, linear, a line in breadth: every branch is terminated by one, two, or three flowers. These flowers, in the improved garden plant, have a spicy odour.

There are both single and double varieties, with reddish flowers, with variegated red and white flowers, with variegated red, white, and purple flowers, with variegated red, scarlet, purple, and white flowers, and with variegated red or purple above and white underneath.

The Carnations are distinguished by modern florists, from the difference of variegation, into four classes:—as *Flakes*, having two colours only, and their stripes large, going quite through the leaves. *Bizarres*, with flowers striped or variegated with three or four different colours, in irregular spots and stripes. *Piquettes*, having a white ground, spotted or pounced with scarlet, red, purple, or other colours. *Painted Ladies*, with the petals of a red or purple colour on the upper side, and entirely white underneath.

Each of these classes have numerous sub-varieties, especially the third, which was formerly in most esteem with florists; but of late years the *Flakes* have been in greater request. It is useless however to enumerate their sub-varieties, as they are not by any means permanent.

The properties of a good Carnation are thus stated by florists:—The stem of the flower should be straight, strong, and able to support the weight of the flower without hanging down: the flower at least not less than from thirty to forty-five inches high: the petals well formed, long, broad, stiff, and pretty easy to expand, or, as the florists term it, make free flowers, being neither too close nor too thin; the middle of the flower not advanced too high above the other parts; the colours bright, and equally marked all over the flower: the flower very full of petals, so as to render it, when blown, very thick in the middle, with the outside perfectly round. And Martyn adds, " that the lower or outer circle of petals, commonly called the guard leaves, should be particularly substantial; should rise perpendicularly about half an inch above the calyx, and then turn off gracefully in a horizontal direction, supporting the interior petals, which should decrease gradually in size as they approach the centre, which should be well filled with them. All the petals should be regularly disposed, and lie over each other in such a manner as that their respective and united beauties may meet the eye all together; they should be nearly flat, or at most have a small degree of inflection at the broad end; their edges perfectly entire, without notch, fringe, or indenture. The calyx should be at least an inch in length, sufficiently strong at top to keep the bases of the petals in a close and circular body: the colours distinct, and the stripes regular, narrowing gradually to the claw of the petal, and there ending in a fine point. Almost one half of each petal should be of a clear white, free from spots."

These properties are, however, chiefly expected in the fine potted varieties, which on coming into blow are usually placed together upon a stand or stage considerably raised and covered, in order to produce the fullest effect, and by protecting them to continue longer in beauty.

The double varieties, as being more large and beautiful in their colours, should be principally cultivated. Some of them, especially the *Bursters*, are extremely large, as three or four inches in diameter over the crown.

Whole Blowers and *Bursters* are common to most of the varieties, especially the *Flakes* and *Bizarres;* the former are those in which the calyx or outer cup is long and of equal growth, opening regularly each way only at top, to admit a free and equal expansion of the petals all round: the flowers in these, though somewhat smaller, are more equally expanded, and require less trouble in the management of their bloom than in the *Bursters*. The latter are those in which the cup is large, and as it were swollen, being liable to burst on one side, and permit the petal to break out and produce irregular flowers, if care be not taken to prevent it by tying, and opening the calyx a little on the opposite side. The *Whole Blowers* are on this account the more convenient for culture, where much time cannot be spared in attending to the flowers.

The third species has numerous barren stems, reclining and putting forth roots, the flowering stems from six to eight inches high, columnar below, square at top, slender, weak, but usually erect, sometimes simple, sometimes branched or dichotomous, swollen at the joints, slightly pubescent: the leaves are in pairs at each joint, linear or subulate, nearly the length of the internode, converging to the stalk, and embracing it at the base, slightly pubescent; those of the barren branches narrower: the peduncles are round, downy, from the ends of the stem and branches, single, or two from the same joint, each bearing one flower: the petals are toothed at the edge, bright red above, pale beneath; but according to Ray reddish, with a ring of deeper-coloured dots surrounding the eye; with dark purplish teeth near the throat, and beset with white silvery points, with hairs proceeding from them: the petals vary much in colour, being sometimes of a very pale flesh colour, sometimes deep red, but always marked with a ring of deeper red dots near the centre of the flower. It is a native of Sweden, &c.

There is a cultivated variety in gardens with white flowers, with a beautiful purple ring, and leaves rather more glaucous than in the common sort.

The fourth species has the stems ascending, a foot or eighteen inches in height, and branched: the leaves of a grayish or glaucous hue, a line and half wide, very sharp at the end: the flowers one, two, seldom three, at the ends of the branches, and sweet-scented: the calyx is of a glaucous-green, longer than in the other species: the petals large, light red or bright purple, sometimes white, with a circle of red; deeply jagged, having a red down at the base of the lamina or border. It is a native of Europe; flowering from June to August, and is perennial.

The fifth, according to Dr. Smith, has a woody root: the stalks several, a span high, erect, simple, smooth, quadrangular, having two or three pair of leaves on them, one-flowered, scarcely ever two-flowered: the leaves are linear-lanceolate, bluntish, glaucous: the scales of the calyx only one third of the length of the tube, ovate-roundish, bluntly mucronate and striated: the petals are flesh-coloured, with a double row of blunt notches, marked with lines, and bearded at the base. It is a native of Switzerland.

In the sixth, the flower-stems are from six to eight or nine inches high, branching out on every side; the branches grow erect, and are terminated each by one flower: the flowers have no scent, but, having a great variety of colours, they are a considerable ornament to the flower-garden from July until the autumn: they have been greatly improved by culture; some flowers being as full of petals as the best double Pinks, and display the most glowing and vivid red colours. It is a native of China.

Martyn observes, that the roots often last two years in a dry soil; but they are generally raised from seeds annually. In the nursery-grounds it is generally known by the name of Indian Pink. Dr. Smith mentions having had a plant from Mr. Sikes's, which seemed to be a mule between this and the first species.

There are varieties with red flowers, with purple flowers, with white flowers, with variegated flowers, each single and double, and imperial large-flowered.

The seventh species has the stem a foot or eighteen inches in height, procumbent at the base, and then erect, round, somewhat two-edged on the upper part, smooth, branching only at top: the leaves are like those of narrow-leaved Sweet-William, connate, lanceolate-linear or linear subulate, acute, quite entire, bright green, smooth, marked with lines and a rising nerve, rough on the edge, green not glaucous: the flowers are erect, usually two terminating each branch, on short peduncles; sometimes there are more, and sometimes only one: petals pale red, sometimes white, sprinkled with bloody spots: they smell very sweet, especially in the evening. It is supposed by some perennial, but by others biennial, or annual. It succeeds best in a calcareous soil. It is a native of Denmark, &c. flowering in July and the following month.

The varieties of pinks principally cultivated in the garden are as below, flowering in the following order.

The *Damask Pink*, which is the first of the double sorts in flower; it has but a short stalk; the flower is not very large, nor so double as in many others; the colour is of a pale purple, inclining to red. It is very sweet in its smell.

The *White Shock*, which is thus denominated from the whiteness of its flowers, and the borders of the petals being much jagged and fringed: the flower-stalks are eight or ten inches in height. Its scent is not so agreeable as in some other sorts.

The *Pheasant's Eye*, of which there are different varieties, and frequently new ones introduced, some of which have very large double flowers; those which burst their pods are the least esteemed. They have firm flower-stems, eight or ten inches high: the flowers large, whitish, or blush-coloured, with dark purple spots in the middle. That sort of Pheasant's Eye called *Bat's Pink* often flowers again in autumn.

The *Cob Pink*, the stalks of which are much taller than in those of the former sorts; twelve or fifteen inches high; the flowers very double, and of a bright red colour; it has the most agreeable odour of all the sorts; flowering from the latter end of May to the middle of July.

The *Old Man's Head Pink*, and the *Painted Lady*, flower in July, at the same time with the Carnation, to which they are more nearly allied than to the Pink. The first, when in its proper colours, is purple and white striped and spotted, but it is frequently of one plain colour, as purple: it continues flowering till the frost in autumn puts a stop to it, and the flower having an agreeable scent renders it valuable. The latter is chiefly admired for the liveliness of its colour; as it is not so sweet, or of so long continuance, as the other.

The *Clove Pink* has a large deep red flower, affording a strong scent of the Clove.

Martyn thinks it probable that the Red Pinks take their rise from the Carnation, whilst the Pheasant's Eye Pinks seem to derive their origin from the fourth. Some give them all as variations of the third; which is not, he conceives, likely.

There are single and double flowers of each of these sorts.

Culture.—Though the culture in these ornamental plants is effected without much difficulty, considerable attention is necessary in the management of some of the sorts, to have them flower in the utmost perfection and beauty.

Culture in the Sweet-William Kind.—The single sorts of these plants are readily increased by sowing seed which has been carefully collected in a bed of light earth, that has not been much enriched by manure, in the latter end of March or beginning of the following month, either over the surface or in slight drills, covering it in well: when the plants have attained a proper growth, as about the latter end of June, they should be removed and set out on other small beds prepared for them, planting them out six or eight inches distant each way, watering them and keeping them perfectly free from weeds till the following autumn or spring, when they must be taken up with good balls of earth about their roots, and set out where they are to flower. It is by this method that new varieties are produced. Although these plants are perennial, they should be raised every year from seed, to have them blow strong and in perfection.

These and the double sorts may be continued by slips or layers. In the former mode the slips should be planted out either in the early autumn or spring months where they are to remain, giving them a little water at the time, when the weather is dry. When the slips are taken from the young plants, they should be made quite down to the roots, so as to have fibres to them. In this way the plants are often good and flower well. Cuttings or pipings managed in the same way also succeed well.

In the latter method the more tender branches should be laid down in the summer months, water being frequently given when the weather is hot and dry. After they have taken root perfectly they should be separated or taken off, and planted out where they are to remain, or in beds of light earth, to be afterwards removed, a little water being given at the time. A few of the best should be potted in the beginning of autumn, in order to be more conveniently removed under shelter during the severity of winter.

These plants should neither be kept too moist or dry, as in both situations they are liable to sustain much injury by the canker.

The seed for the culture of these plants should be collected, when perfectly ripened, from the best and most perfect flowers which have grown at a distance from any bad or inferior plants, and be kept in a dry situation.

Culture in the Gilliflower or Carnation Kind.—These plants may be raised with facility in the beds or borders of pleasure-grounds or gardens where the soil is moderately light and dry; but in order to have them in the greatest superiority and perfection, it is the practice of florists to employ a compost prepared by mixing the surface vegetable mould of old pastures with well rotted stable-dung from old hot-beds, or neat's dung in the same state and sea-sand, in the proportion of a third of the former and a fourth of the latter. These materials should be well blended, and lie for a considerable length of time, being frequently turned before they are made use of. This mould may be employed both for filling the pots with and for forming the beds; and in preparing it for these purposes it should not be sifted fine, but merely well broken down and reduced by the spade.

These flowers may be increased and new ones produced by seeds, which should be sown on beds formed of the above compost, or on the common borders of light fine mould, from about the middle of March to the same period in the following month, raking it in evenly to the depth of a quarter of an inch, giving slight waterings when necessary, to promote their vegetation. The fine sorts are likewise often sown in pots or boxes, in order that they may be readily placed so as to have only the morning sun when the season is hot and dry.

After the plants are come up they should be kept clear from weeds, and be watered occasionally, and about July, when the weather is moist, be taken up and pricked out in nursery-rows on beds three feet in width, setting them six inches distant, and watering them well at the time and afterwards till they have taken fresh root.

At the beginning of autumn, as about September, they will have attained a large growth, and require to be removed into other beds or situations for flowering, in which they should be set out in rows eight or nine inches distant each way. Some place them in the quincunx manner, as producing a better effect. In this situation they should be protected in severe weather during the winter by the application of mats upon hoops placed over the beds. The culture they require in these beds is merely that of keeping them free from weeds, occasionally stirring the earth between them by a hoe, and as their flower-stalks advance giving them the support of handsome sticks. They should remain in these situations till they flower, after which the singles should be taken out and made use of as there may be occasion, in order to afford full room for the double sorts, the finest and most perfect of which being made stage or principal flowers, and the others set out in the borders; the whole being increased as there may be necessity by layering both the first and succeeding years.

The layer method is that which is principally employed in increasing and continuing particular varieties, as being the most certain. For this purpose the radical leafy shoots proceeding from the crowns of the plants, when of six or eight inches growth, are the most proper. These should be laid down into the earth about the latter end of June or beginning of the following month. The work is performed by stripping off the leaves from the lower part of the shoot, cutting off a little of the top, and then fixing upon a strong joint about the middle, to slit it with a sharp knife nearly half way through in a slanting manner, so as nearly to reach the joint above, forming a sort of tongue on the under side of the shoot, removing the bark from the enlarged part or joint to promote the striking root. The mould about the root of the plant should then be stirred, and fresh added where it is wanting, forming a slight drill or opening for the branch to be gently laid down into in a horizontal manner with the cut part in the earth, the top being left out and raised a little to keep the slit open, pegging the main part of the branch down by short hooked sticks, drawing the earth over the cut part. When this method has been practised on all the branches, a good watering should be given to settle the mould about them, and frequently repeated when the season is dry.

When the layers thus formed have stricken good roots, which is mostly the case in six or eight weeks, they should be taken off with the root-fibres as entire as possible, and after having the sticky parts about the bottom and the top leaves trimmed off, be planted out either in pots or beds, in the latter method at six or eight inches distance, with a dibble, a good watering being immediately given, and repeated every two days for ten days or a fortnight till the plants become well rooted. They should be removed from these beds with balls of earth about their roots in the beginning of the autumn into small pots, to have shelter during the winter, and in the early spring be placed in large ones for flowering; but when there is room, it is a better practice to plant them at once in the pots, as frequent transplanting injures their growth. Some florists, however, think it beneficial.

The less fine sorts may at the above season be planted out in the clumps, borders, or other parts, or be left in the beds for flowering.

These flowers may likewise be increased by cuttings or pipings in the manner directed below in raising pinks.

In the winter management of the plants, the fine potted sorts should about November be removed under the protection of a deep frame covered with glasses, and plunged closely together in a slight bed of old tan, dry sand, or earth. In this situation they should have a free admission of air when the weather is mild, but be covered in frost, and care should be taken that there be no stagnation of moisture, by the holes in the bottoms of the pots being obstructed.

The flowers in the beds should be covered by mats or other contrivances when the weather is severe at the same season.

In the spring their culture should be continued by removing those fine varieties planted out in small pots in the autumn into large ones for flowering, and such as have remained in the nursery-beds into the borders or large pots nine or ten inches over at top, to afford flowers, in each of which the business should be done by preserving balls of earth about their roots, about the beginning of March or the following month. The work is performed by closing the holes in the bottoms of the pots with pieces of oyster shells or tiles, then filling them half way up with the earth prepared as above, placing the plants with their balls of earth in them, and filling up the vacancies on the sides with more fresh mould, closing it well up about the bodies of the plants so as they may stand nearly as high as the tops of the pots, giving a good watering at the time.

When the plants have been thus potted they should be placed in a sheltered sunny situation in the open air, being frequently refreshed with water in hot dry weather.

It is the practice with some florists to plant two flowers in a large pot; but it is better as well as more convenient for layering only to have one, the plants flowering stronger and making more free shoots.

In the summer treatment of the flowers the care of frequent watering should be continued when the weather is hot and droughty, and the surface mould be occasionally stirred to promote the growth and preserve neatness; and when the flower-stalks are a little advanced, handsome painted sticks should be placed for their support, both in the pots and other situations, to which they should be neatly tied as they proceed in their growth. When they approach the period of flowering, the curious sorts should be removed to a stage constructed for the purposse, and provided with an awning to protect them from being injured by the scorching heat of the sun in the middle of the day, and the effects of too much wet, by which they are continued much longer in beauty.

Stages of this nature are formed in different methods, according to the fancy of the persons who make use of them. The following is a neat mode of constructing such apparatus: a platform is erected at the height of eighteen inches or two feet, constituted of two ranges of planks, in order to contain two rows of pots, sustained by posts in one or two rows underneath with an open-work roof five or six feet in height, covered by means of painted canvass, or some other suitable material, the whole being supported by upright posts, according to the taste of the proprietor.

The body of the stage should be neatly painted, for the purpose of effect as well as preservation.

Instead of these stages some make use of a sort of caps or umbrellas formed of tin or other materials, supported on stems or sticks, one for each plant; but these are neither so convenient nor afford so good an effect as the former in displaying the beauties of the flowers.

But whatever contrivances are made use of for the protection and display of these curious flowers, the tying of the plants to the support-sticks should be continued as the stems advance; and some curious florists contrive to keep them erect at the tops by the use of fine wire or other similar means. And in order to procure the flowers as large and fine as possible, they trim off all the side-shoots from the stems, leaving only one or two of the top flower-buds to expand. When the flowers begin to open, care should be taken to prevent their bursting and expanding in an irregular manner, especially in the *bursters*, by making a little opening or two in the indentings at the top at equal distances in other places, by means of fine small pointed scissars. The regular expansion of the flowers may likewise be much assisted, especially where one side is more expanded than the other, and they are in pots, by turning the pots, that the contrary sides may have the full influence of the sun.

Some florists likewise, to blow the curious sorts as broad and fine as possible, make use of a kind of spreading, stiff, white paper collar, cut open on one side and placed round the bottoms of the flowers to expand the petals upon to the utmost extent; but the practice is not in general advisable.

As these plants flower less perfectly as they increase in age, it is proper to provide fresh supplies of new varieties of them annually by sowing seed obtained from the best sorts in the spring season, as directed above, and likewise to continue the most valuable double varieties by means of layering in the summer months every year, or the planting of cuttings or pipings, but the first is by much the best mode.

In order to have good seed, some plants of the best and most curious sorts should be preserved distinct, and suffered to flower and ripen their seed in a perfect manner, which should then be taken off in the pods when the weather is dry, and, after being hardened a little, rubbed out and put up in a bag to be placed in a dry situation.

Culture in the Pink Kind.—All the species and varieties of these plants may be increased from seeds, and the perennial sorts likewise by layers, slips, cuttings, and pipings.

Where the best sorts only are grown, great care should be taken, in providing the seed, that it be always had from the best and most perfect kinds.

It should be sown in the manner directed for Carnations, in the beginning of March or the following month, and the plants be managed in a similar manner, only, as being more hardy in their nature, with less tenderness.

The sixth species is best increased by sowing the seed on a very gentle hot-bed the beginning of April, as the vegetation is thereby much forwarded. When the plants appear air should be admitted freely, to prevent their drawing up weak, and when of a little growth they may be pricked out with good roots, if the weather be suitable, on a bed of light earth, at about three inches distance, proper shade and water being given. When they are of considerable growth, as about the letter end of May, they should be removed with good balls of earth about their roots, and planted where they are to remain for flowering.

The layers should be laid down in the latter end of July or beginning of the following month, in exactly the same manner as has been directed for Carnations, giving them the same culture in every respect.

Where there are large plants that spread considerably in a lateral manner, their shoots may be covered with earth in the spring to the depth of an inch or two; they will thus often take root, form good plants, and be in a state to be planted out in the beginning of the autumn.

The slips of the young shoots either made from the sides of the principal ones or from the roots, so as to have fibres to them, and planted out in February or the two following months in beds of good mould to a good depth, readily take root and become good plants before the end of the summer; at which time, or in the following spring, they may be removed with good balls of earth about their roots, to the places where they are to flower.

Cuttings made from the firm shoots of the same year at the joints, to the length of three or four inches, when planted pretty deeply in a bed of very fine mould, or in large pots at the distance of an inch or two, and well watered at the time, readily grow and become plants after being transplanted into separate pots, or the borders where they are to flower.

Pipings made by drawing out or breaking off the top parts of the young shoots at the joints and trimming them, by which a sort of pipe is formed, on being planted and managed in the same manner, take root and afford plants.

In both these last methods the rooting of the shoots is greatly promoted by their being closely covered by bell, hand, or other sorts of glasses, and having frequent slight waterings given round the sides of them.

The seed of the different best sorts should be collected in the pods in August or the following month when perfectly ripened, choosing a dry season for the purpose, spreading them out to harden and become dry on paper or in some other manner, after which it should be rubbed out and kept in some dry situation till it is wanted.

All the different species and varieties of these plants are highly ornamental, and many of them curious, affording an extremely fragrant smell.

The first sort in all the varieties may be made use of in the borders, clumps, and other places, where they produce a fine effect by the variety of their flowers in assemblage with others of similar growth.

A few of the double more curious kinds may also be cultivated in pots for adorning the more conspicuous places about the house.

The second species and all the different varieties of the Carnation kind are proper ornamental plants for the fronts of clumps, borders, and other principal parts of gardens or ornamented grounds, where they have a very agreeable effect from the beauty and elegance of their flowers, as well as the fragrance which they afford.

The curious double sorts are mostly cultivated in pots for the convenience of protection, and being exhibited on stages or in particular situations during the time of their blowing, as well as for the ease and facility of removal when necessary.

The third sort and the different varieties of the common pink are well adapted for producing ornament in the fore parts of beds, borders, and other compartments of pleasure-grounds and gardens, both from the multiplicity of their flowers and their beauty, as well as fragrant smell. These are sometimes used for edgings, but from their spreading growth they require frequent cutting in.

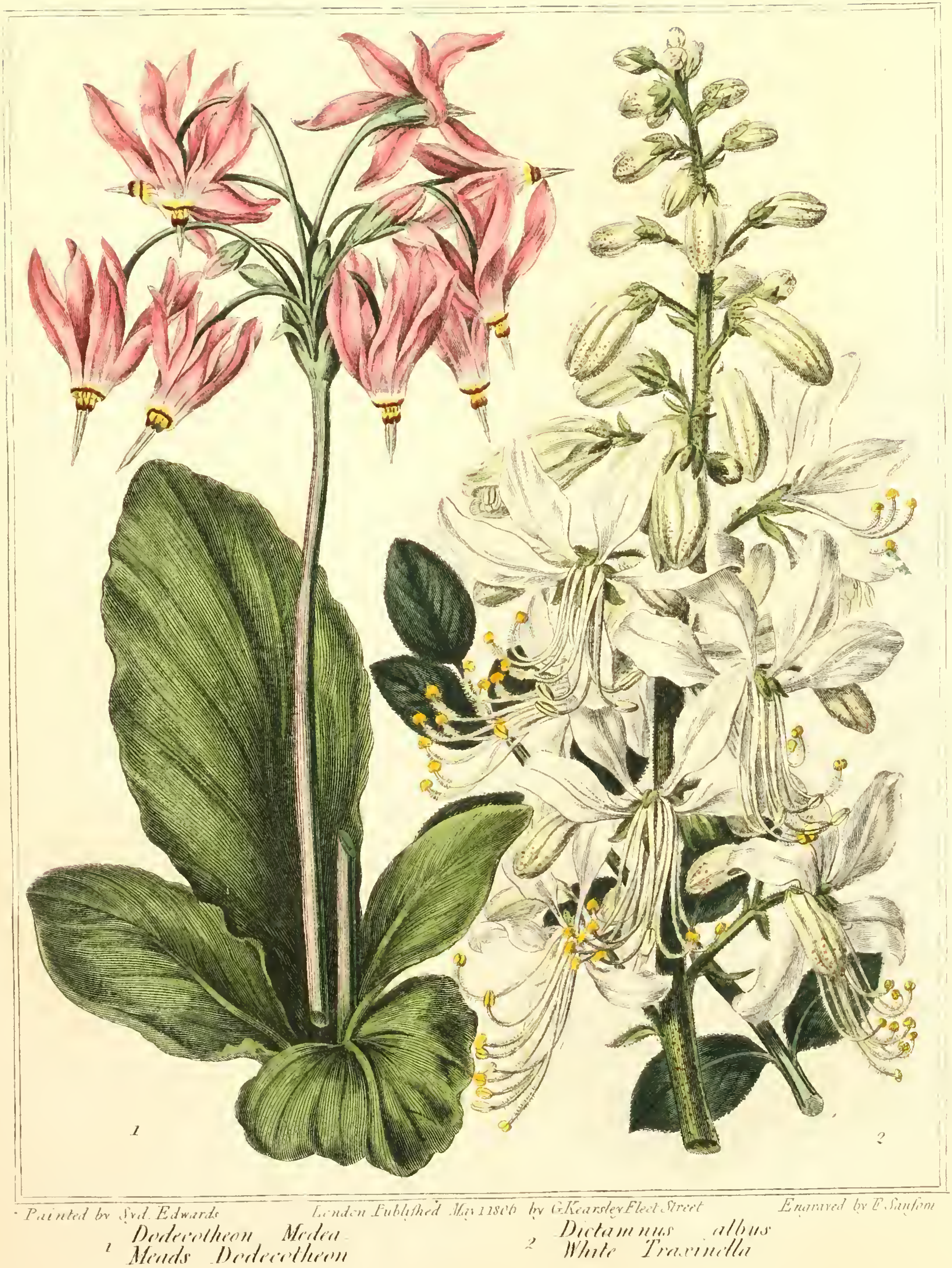
The fourth and fifth sorts may likewise be employed for the purpose of affording a greater variety.

The sixth species is very ornamental from the fineness of the colour of the flowers, and the great length of time which they continue in bloom.

It is observed by Martyn that the seventh species, from the elegance and delicious fragrance of its flowers, is deserving of being employed in all curious gardens.

In the planting out the various sorts, the annual kinds are mostly disposed in patches of three or four plants in each; but the perennial kinds singly, as being more bushy and spreading in their growth.

All the several species and varieties of these flowery plants may be brought to blow much more early by being cultivated in frames or the hot-house.



Painted by Syd. Edwards London Publiſhed May 1 1806 by G.Kearsley Fleet Street Engraved by F. Sanſom

1 Dodecotheon Medea
Meads Dodecotheon

2 Dictamnus albus
White Traxinella

PLATE XXII.

1. DODECATHEON MEADIA.

MEAD'S DODECOTHEAN.

This genus furnishes a plant of the low flowering perennial kind.

It belongs to the class and order *Pentandria Monogynia*, and ranks in the natural order of *Preciæ*.

The characters are: that the calyx is a many-leaved, many-flowered involucre, very small: perianthium one-leafed, half five-cleft, permanent: divisions reflex, finally longer, permanent: the corolla one-petalled, five-parted: tube shorter than the calyx: (naked at the throat) border reflex: divisions very long, lanceolate: the stamina consists of five filaments, very short, obtuse, seated on the tube: anthers sagittate, converging into a beak: the pistillum is a conic germ: style filiform, longer than the stamens: stigma obtuse: the pericarpium is an oblong, one-celled capsule, gaping at the tip: (subcylindric, opening into five parts): the seeds very many, and small: receptacle free, small.

The only species is *D. Meadea*, Virginian Cowslip, or Meadea.

It has a yellow perennial root, from which come out in the spring several long smooth leaves, near six inches long, and two and a half broad; at first standing erect, but afterwards spreading on the ground, especially when much exposed to the sun: from among these leaves arise two, three, or four flower-stalks, in proportion to the strength of the roots, which rise eight or nine inches high, smooth, naked, and terminated by an umbel of flowers, which are purple, inclining to a peach blossom colour. It is native of Virginia, flowering about the end of April or beginning of the following month.

Culture.—The methods of propagation in this plant are either by seeds, or off-sets from the roots; but the last is the best.

In the first, the seeds should be sown either in the autumn, soon after they are fully ripened, or in the spring, in a moist shady spot, or in pots to be placed in such situations. When the plants appear, they should be kept free from weeds, and have occasional water when the weather is dry, being shaded from the heat of the sun. When the stems decay, they may be carefully removed and planted in moist shady places, at the distance of twelve or eighteen inches, to remain till the following autumn, when they should be finally planted in the borders and other places where there are due shade and moisture.

The roots may be removed, and the off-sets carefully taken off from them about the latter end of August or the following month, and immediately planted in such situations as the above, when they will be fully established before the frosts set in.

These plants are found to be hardy, but incapable of succeeding in dry soils or sunny situations. They afford ornament in the beds, borders, or other parts of pleasure-grounds.

2. DICTAMNUS ALBUS.

WHITE FRAXINELLA.

This genus affords a plant of the herbaceous hardy flowering perennial kind.

It belongs to the class and order *Decandria Monogynia*, and ranks in the natural order of *Multisiliquæ*.

The characters are: that the calyx is a five-leaved perianthium, very small, deciduous: leaflets oblong, acuminate: the corolla has five petals, oval-lanceolate, acuminate, with claws, unequal; of which two are bent upwards; two placed obliquely at the sides; one bent downwards: the stamina consist of ten subulate filaments, length of the corolla, situated between the two lateral declining petals, unequal; small point-like glands scattered over the filaments; anthers four-sided, rising upwards: the pistillum is a five-cornered germ, elevated from the receptacle: style simple, short, bent downwards, incurved: stigma sharp, rising upwards: the pericarpium has five capsules, conjoined inwardly at the border, compressed, acuminate, with distant tips, two-valved: the seeds in pairs, ovate, very smooth, within a common aril, which is two-valved, and cut down.

The species cultivated is D. *albus*, Fraxinella, or White Dittany.

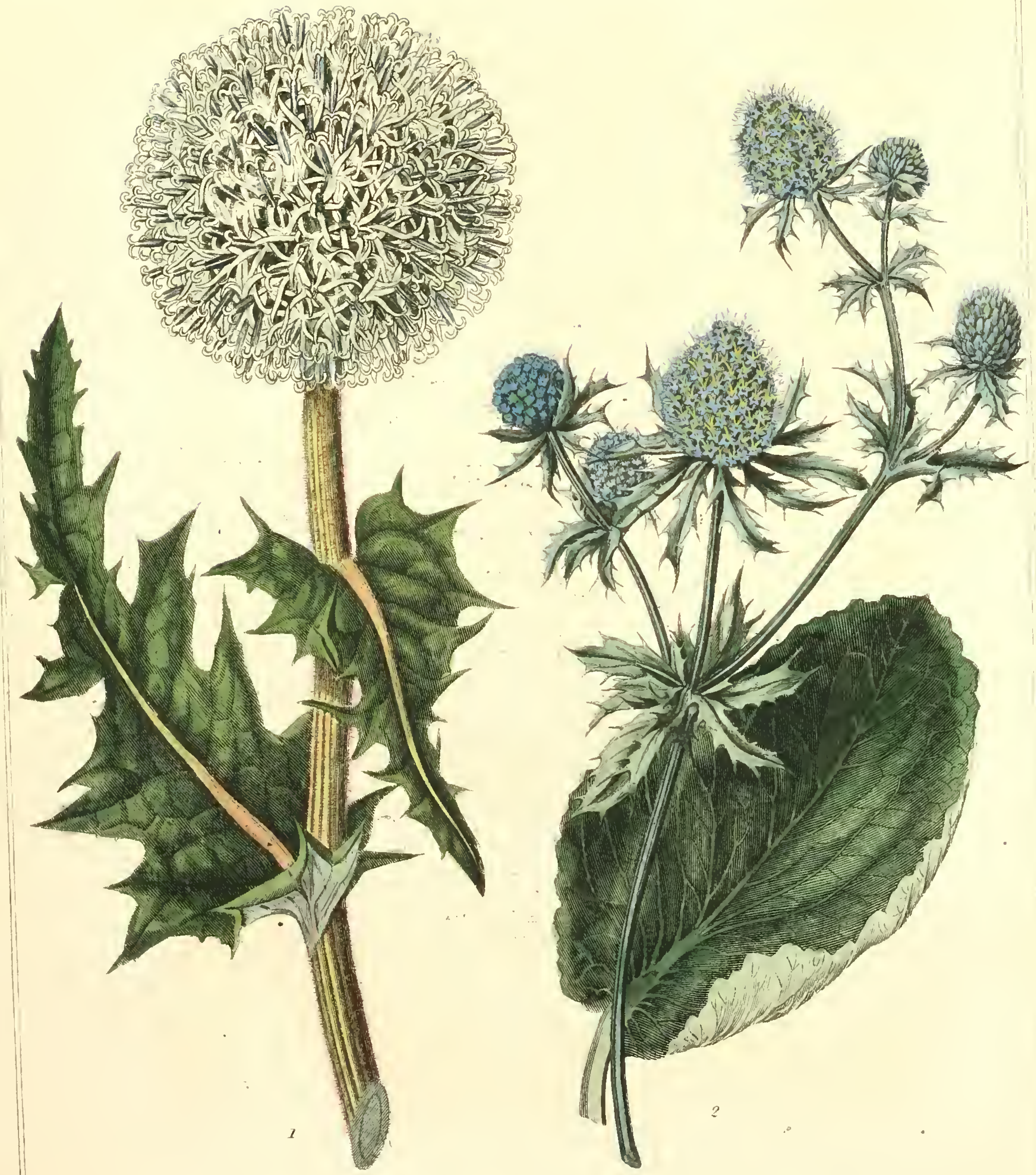
It has a perennial root, striking deep into the ground, and the head annually increasing in size: the stalks many, two or three feet high, round, here and there slightly grooved, sometimes subancipital, not branched, at bottom green and beset with white hairs, ferruginous-red towards the top, with resinous glands: the leaves are alternate, the larger above a foot in length, spreading out horizontally, ascending towards the end; the midrib flat at top and edged on both sides, convex beneath and hairy; leaflets from two to five pairs, with an odd one at the end, most of them alternate, except the top pair or two, sessile or subsessile, except the end one, which is on a long winged petiole, smooth, stiff, oblique except the end one, ovate, acute, serrate, shining on both sides, about two inches long and an inch wide; the whole somewhat resembling an Ash leaf. The flowers in a long pyramidal loose spike or raceme, nine or ten inches long, of a purplish colour: the branches of the raceme alternate, with a bracte at the foot of each, one or two-flowered; there is also a short, lanceolate, hairy bracte to each pedicel. To each flower succeeds a fruit consisting of five compressed capsules, spreading out like the points of a star.

The whole plant, especially when gently rubbed, emits an odour like that of lemon-peel, but when bruised it has something of a balsamic scent. It is a native of Germany, flowering here at the end of May.

There are varieties with white flowers, with red and purple striped, and with short spikes of flowers.

Culture. These plants may be increased by sowing the seeds in the beds, borders, or other parts of pleasure-grounds or gardens where the plants are to remain, in the beginning of the autumn soon after they become ripe, or in the spring; but the former is the best season, as the plants rise stronger and with more certainty. The plants should afterwards be kept perfectly clear from weeds, and have their stems cut down and cleared away every year in the autumn, as well as the earth dug round them in the early spring. Some, however, advise the roots of the plants in the first autumn to be taken up and planted out in small beds at six or eight inches distance each way, to stand two or three years till they are strong enough to flower, when they are to be carefully taken up in the autumn, and placed where they are to remain. They continue for a great length of time, and require little culture except that of being kept free from weeds, and trimmed as above in the autumn.

They are plants well suited to the middle parts of beds, borders, clumps, and other parts of ornamented grounds.



Painted by Syd Edwards London Publiſhed Augst 1.1806 by G.Kearsley Fleet Street Engraved by F. Sanſom

1 *Echinops sphærocephalus*
Great Globe Thiſtle

2 *Eryngium alpinum*
Alpine Eryngo

PLATE XXIII.

1. ECHINOPS SPHÆROCEPHALUS.

GREAT GLOBE THISTLE.

This genus contains plants of the hardy, herbaceous, perennial and annual kinds.

It belongs to the class and order *Syngenesia Polygamia Segregata*, and ranks in the natural order of *Compositæ Capitatæ*.

The characters are: that the calyx is common, many-leaved, with scales subulate, totally reflected, containing many flowers: perianthium partial one-flowered, oblong, imbricate, cornered: leaflets subulate, loose above, upright, permanent: the corolla one-petalled, length of the calyx, tubular; border five-cleft, reflex, spreading: the stamina consist of five capillary filaments, very short: anthers cylindric, tubular, five-toothed: the pistillum is an oblong germ: style filiform, length of the corolla: stigma double, somewhat depressed, rolled back: there is no pericarpium: calyx unchanged, larger: the seed single, ovate-oblong, narrower at the base, with obtuse tip: the down obscure; the receptacle common globose and bristly.

The species cultivated are: 1. *E. sphærocephalus*, Great Globe Thistle; 2. *E. ritro,* Small Globe Thistle; 3. *E. strigosus*, Annual Globe Thistle.

The first has a perennial root. The stalks many, four or five feet high. The leaves long and jagged, divided into many segments almost to the midrib, the jags ending in spines; they are of a dark-green on their upper side, but woolly on their under. There are several globular heads of flowers on each stalk. The florets are commonly blue, but sometimes white. These come out in July, and the seeds ripen in August. It is a native of France, &c.

It varies with white flowers.

The second species has a perennial creeping root, sending up several strong stalks two feet high, and branching. The leaves cut into many fine segments to the midrib. Each branch is terminated by a globular head of flowers, smaller than those of the first, and of a deeper blue, but sometimes white: they come out in July. It is a native of the South of France.

It also varies with white flowers.

The third is an annual plant, with a stiff white stalk two feet high. The leaves divided, ending in many points, which have spines; their upper side green, covered with brown hairs, their under side white and woolly: the stalk is terminated by one large head of pale blue flowers, appearing in July. It is a native of France, &c.

Culture.—These plants are readily increased by sowing the seeds in the autumn in the places where the plants are to grow. When they are come up in the spring, they should be properly thinned and kept free from weeds. Some of the strongest plants may likewise be removed to other situations. In the third sort the seeds are better sown in the early spring.

They are well suited to afford variety in the large borders of gardens or pleasure-grounds, as they succeed in almost any soil.

2. ERYNGIUM ALPINUM.

ALPINE ERYNGO.

THIS genus contains plants of the hardy flowering biennial and perennial kind.

It belongs to the class and order *Pentandria Digynia*, and ranks in the natural order of *Umbellatæ*.

The characters are: that the calyx is a common conic receptacle, chaffs separating the sessile floscules: involucre of the receptacle many-leaved, flat, exceeding the floscules: perianthium proper five-leaved, upright, sharp, exceeding the corolla, seated on the germ:

the corolla universal, uniform, roundish: floscules all fertile: proper five-petalled: petals oblong, the tips bent inwards to the base, straightened longitudinally by a line: the stamina consist of five capillary filaments, straight, exceeding the floscules: anthers oblong: the pistillum is a hispid inferior germ: styles two, filiform, straight, length of the stamens: stigmas simple: the pericarpium is an ovate fruit, divisible in two directions: the seeds oblong, and columnar.

The species cultivated are: 1. *E. fœtidum*, Stinking Eryngo; 2. *E. planum*, Flat-leaved Eryngo; 3. *E. maritimum*, Sea Eryngo, or Sea-Holly; 4. *E. amethystinum*, Amethystine Eryngo; 5. *E. alpinum*, Alpine Eryngo.

The first has an annual or biennial root. The root-leaves bluntish; the serratures terminating in harmless spines. The stem a foot high or more, green, somewhat angular, dichotomous, spreading; with the extreme branches flexuose. The leaves on the branches opposite, stem-clasping, wedge-shaped, subconnate, with the edge toothed and semitrifid; the divisions lanceolate, all the angles terminating in a purplish spine. The peduncle springs from the angles of the stem; it is straight, shorter than the internode, triangular, streaked on the sides. The involucres are composed of six leaflets or thereabouts; are horizontal, and longer than the flower; the leaflets are lanceolate, nerved, and have a spine at the tip and at one or two of the serratures. The common receptacle is cylindric, whence the flower is cylindric. It is of a dull white colour, appearing at the divisions and extremities of the branches. The whole plant has a very penetrating, strong, but not unsavoury smell. It is a native of Virginia, flowering in June and July.

The second species has a perennial root. The stem upright, round, furrowed or streaked, whitish, about a foot and half in height, blueish at top, where it divides into three parts, each of which is terminated by a peduncled axillary flower. Lower leaves cordate ovate, obtuse, on long petioles, with unequal, mucronate notches about the edge; stem-leaves sessile; the uppermost lobed, gashed, smaller serrate, the notches spinulose. The flowers in terminating heads, fenced with a six-leaved involucre, spreading and reflex. It is a native of Austria, &c. flowering in July.

There is a variety with white stalks and flowers.

The third has a creeping root, running deep into the ground. The leaves roundish, stiff, gray, set with sharp spines on the edges. The stems a foot high, branched, smooth, having at each joint leaves of the same form with the lower ones, but smaller. The flowers come out at the ends of the branches in roundish prickly heads, and are of a whitish blue colour; under each head is a range of narrow, stiff, prickly leaves, spreading like the rays of a star. The flowers appear in July. It is a native of Britain, &c. The young flowering-shoots when eaten as asparagus are very grateful, and of a nourishing quality.

The fourth species has the lower leaves divided like the fingers of a hand, into five or six segments, which are very much cut at their extremities into many parts, and have small spines. The stem is about two feet high, with smaller and more divided leaves. The upper part of the stem, and also the heads of flowers, are of the finest amethystine colour, making a fine appearance. It is a native of Styria, flowering in July.

The fifth species has a perennial root. The leaves are cordate and toothed, the lower on long petioles, the upper stem-clasping. The lower leaves resemble those of Cacalia, but are more acute, and the teeth end in a soft spine. Amethystine leaves surround the oblong head of flowers; some of them bristle-form and reflex, others pinnatifid and lanceolate. It is curious, according to Villars, on account of the beauty of the involucres, which are of a vinous azure blue, mixed with green and white. It is a native of Switzerland, &c.

Culture.—Some of these plants may be increased by seed, and the others by planting their creeping roots.

The first, second, fifth, and sixth sorts are raised by sowing the seeds, in the first on a hot-bed or in pots plunged into it, but in the others in the autumn, in the places where the plants are to grow.

When the plants have attained some growth, in the first kind, they should be removed into separate small pots, filled with light, fresh, fine mould, and replunged into the bark hot-bed, being afterwards managed as other exotic plants of the tender kind. The plants usually flower the second year, and then die. In the other species all the culture that is required after the plants appear is that of thinning them properly, keeping them free from weeds, and digging the ground about them in the early spring season.

The third species must be increased by planting portions of the creeping roots of the young plants in a dry gravelly soil in the autumn, as soon as the stems decay. They grow the largest and most fleshy in the root in such situations as are occasionally overflowed by the sea-water.

They afterwards only require the culture of being kept free from weeds.

They are all proper for being introduced in the borders or other parts of pleasure-grounds for variety, except the first, which requires the protection of the stove.

PLATE XXIV.

1. ERICA GRANDIFLORA.

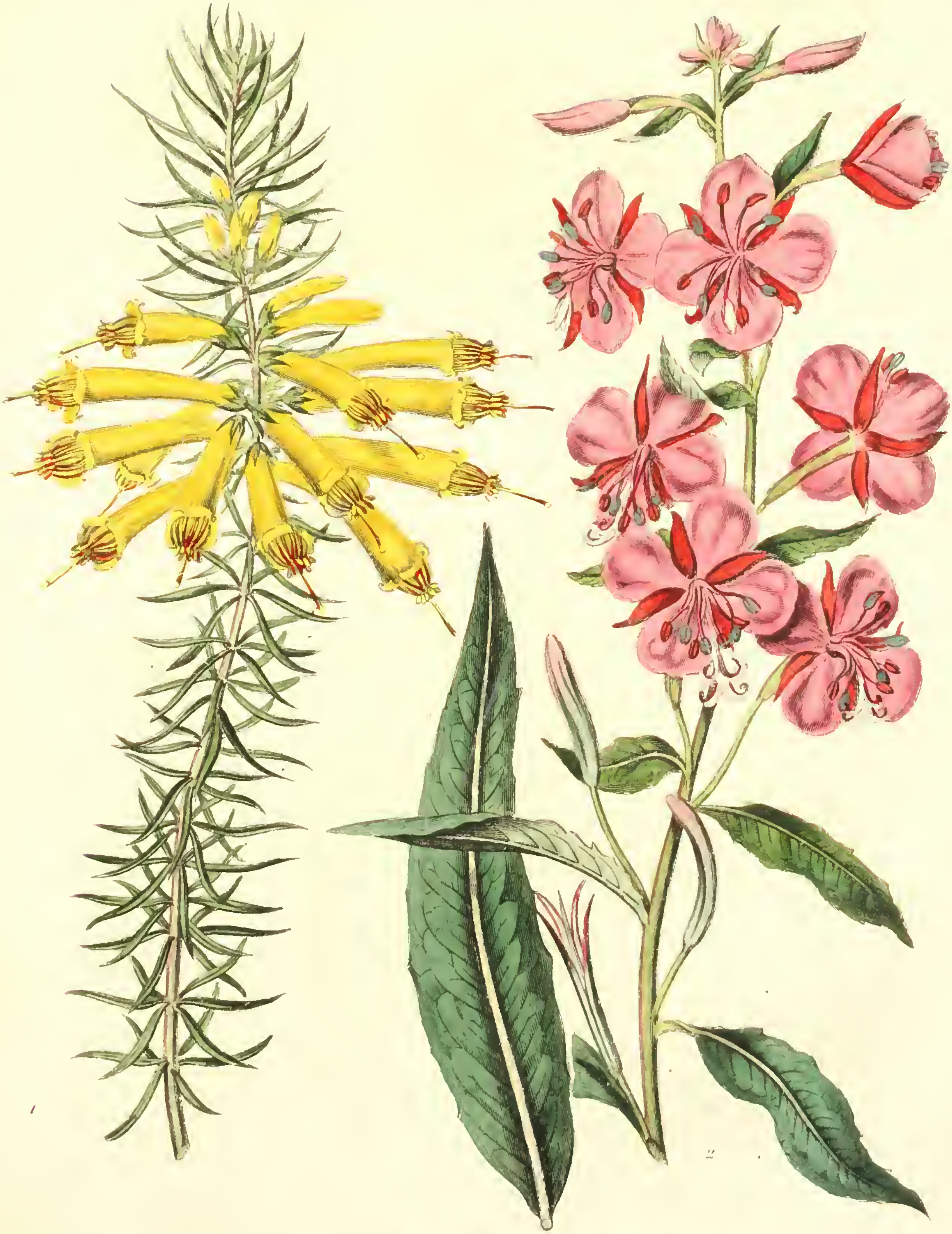
GREAT-FLOWERED HEATH.

This genus comprehends plants of the evergreen, flowery, shrubby kind; mostly exotics.

It belongs to the class and order *Octandria Monogynia*, and ranks in the natural order of *Bicornes.*

The characters are: that the calyx is a four-leaved perianthium: leaflets ovate-oblong, permanent: the corolla one-petalled, bell-form, four-cleft, often bellied: the stamina consist of eight filaments, capillary, inserted into the receptacle: anthers two-cleft at the tip: the pistillum is a roundish, superior germ: style filiform, upright, longer than the stamens: stigma crowned, four-cornered, four-cleft: the pericarpium is a roundish capsule, smaller than the calyx, covered, four-celled, four-valved; partitions meeting with the sutures (opposite to the sutures): the seeds numerous and very small.

The species most in cultivation, according to Martyn, are: 1. *E. Tetralix*, Cross-leaved Heath; 2. *E. cinerea*, Fine-leaved Heath; 3. *E. didyma*, Double-anthered Heath; 4. *E. arborea*, Tree Heath; 5. *E. Australis*, Spanish Heath; 6. *E. multiflora*, Many-flowered Heath; 7. *E. Mediterranea*, Mediterranean Heath; 8. *E. lutea*, Yellow Heath; 9. *E. halicacaba*, Purple-stalked Heath; 10. *E. monsoniana*, Bladder-flowered Heath: 11. *E. mucosa*, Mucous Heath: 12. *E. urceolaris*, Hairy-flowered Heath; 13. *E. marifolia*, Marum-leaved Heath; 14. *E. cruenta*, Bloody-flowered Heath; 15. *E. ramentacea*, Slender-branched Heath; 16. *E. persoluta*, Blush-flowered Heath; 17. *E. triflora*, Three-flowered Heath; 18. *E. baccans*, Arbutus-flowered Heath; 19. *E. corifolia*, Slender-twigged Heath;



Painted by Syd Edwards London Publiſhed [illegible] by G Kearsley Fleet Street Engraved by F Sansom

1 Erica grandiflora
Great flower'd Heath

2 Epilobium Angustifolium
Rose bay Willow herb

20. *E. empetrifolia*, Crow Berry-leaved Heath; 21. *E. capitata*, Woolly Heath; 22. *E. tubiflora*, Tube-flowered Heath; 23. *E. conspicua*, Long-tubed Yellow Heath; 24. *E. cerinthiodes*, Honeywort-flowered Heath; 25. *E. comosa*, Tufted-flowered Heath; 26. *E. massoni*, Tall Downy Heath; 27. *E. Plukenetii*, Smooth-twigged Pencil-flowered Heath; 28. *E. Petiveri*, Downy-twigged Pencil-flowered Heath; 29. *E. herbacea*, Early-flowered Dwarf Heath; 30. *E. grandiflora*, Great-flowered Heath.

There are many other species equally deserving of cultivation.

The first has shrubby stems, from nine to twelve inches high, branched, brown, somewhat rugged from the remains of the leaves which have fallen off: branches a little woolly: the leaves are commonly in fours, but sometimes in fives, ovate-linear, spreading, near the flowers pressed close to the stem. the edges turned in and ciliated, each hair terminating in a small round gland; the upper surface is flat, the lower concave and white: flowers hanging down one over another all one way. It is a native of the northern parts of Europe, flowering in July and August; but according to Linnæus, twice in the year.

It is not inferior to many of the foreign heaths in the beauty and delicacy of its flowers. This is distinguished from the other British heaths, not only by the flowers growing in a kind of pendulous cluster on the tops of the stalks, but by the leaves growing in fours, and forming a sort of cross.

The second species has a perennial woody root: the stems shrubby, about a foot high, with opposite branches: the bark ash-coloured: the leaves are linear, fleshy, spreading; above smooth and shining, transversely wrinkled; towards the end beset with a few scattered hair-like points; beneath having a longitudinal furrow, which is white from a woolliness apparent to the magnifier; the edge somewhat membranaceous, and when viewed with the microscope appearing serrulate: the leaves, when young, have three flat sides, but when full grown are nearly flat: the flowers are in long clustered whorls terminating in spikes, of a deep purple colour, sonorous when struck; they come out from the sides of the young shoots; those from the end-shoots being near each other, but scattered and bare; those from the small lateral branches generally in pairs. It is a native of the middle parts of Europe, flowering from June to August.

The third has twisted, trailing stems: the branches between scored and singular, light reddish brown; the more slender shoots ash-coloured, all lateral, to seven or more rising from the same point in the manner of an umbel; when beginning to flower, gradually tapering towards the end: the leaves are linear, somewhat like those of fir, bowed sideways, smooth, but not glossy, somewhat pointed, when magnified appearing to have distant serratures on the edge, which is bent in; upper surface green, slightly elevated in the middle; under whitish, convex, with a smooth furrow running along it, longer, and sometimes thrice as long as the corolla, and crowded so close as to conceal the younger shoots: the flowers roundish, on long slender peduncles, from the sides of the branches, beginning from below the middle, and extending to the ends, continuing on, in the cultivated plants, till the next season. It is a native of Britain.

The fourth species is an upright shrub, growing to the height of six feet, with upright branches covered with a white nap: the leaves are very abundant, upright, smooth, almost awl-shaped, covering the branches, wrinkled when dry: the flowers very numerous, on the middle of the branches, so that the later leaves are above them; they are on branching peduncles, forming a panicle. It is a native of the South of Europe, flowering from February to May.

The fifth is an upright rigid shrub, with an ash-coloured bark: the leaves are in threes or fours, linear, obtuse, somewhat rugged on the edge: the flowers terminating, two or three, subsessile. It is a native of Spain, flowering in April and May.

The sixth species has the stem the height of a man: the leaves are in fours or fives, spreading, obtuse, gibbous at the base: the flowers purplish. It is a native of the South of Europe, flowering from June to November.

The seventh has the branches whitish, and angular: the leaves are in fours, seldom in fives, and even: the flowers lateral, and of a purple colour, simple, coloured, lanceolate, acute, shorter by half than the corolla: style twice as long as the corolla: stigma entirely simple: it resembles the *multiflora*, but the corolla is absolutely ovate; the branches angular and white. It is a native of the South of Europe, flowering from March to May.

In the eighth species the stem is subdivided into narrow branches: the leaves pressed close, almost imbricate, opposite, blunt, grooved underneath, a line in length: the flowers are on the extreme branchlets, one, two, or three together, and upright, of a yellow colour. The whole plant being covered with shining golden or silvery flowers is very beautiful and ornamental. It is a native of the Cape of Good Hope. It varies with yellow or white flowers.

The ninth is a lofty shrub with purplish branches: the branchlets subtomentose and white: the leaves crowded very much, even, rugged about the edge.

But, according to Thunberg, the stem is smooth, rugged, brown, flexuose, decumbent, strict, a span high: the branches alternate, divaricate, like the stem: the leaves in threes, lanceolate, acute, smooth, flat above, convex beneath, with a slender groove, spreading. It is a native of the Cape of Good Hope, flowering in May and June. It is distinguished from the other sorts by the size of the flowers.

In the tenth the stem is erect, pubescent leafless, two feet high: the branches scattered, frequent, spreading, covered with leaves, very short, simple: the leaves in threes, ovate, obtuse, convex beneath, with a longitudinal groove, flat above, entire, imbricate, smooth, scarcely a line in length: the flowers solitary, nodding, on pubescent reflex peduncles large and white. It is a native of Africa. This is one of the most beautiful plants of this beautiful genus.

The eleventh species has a frutescent stem, determinately branched, with white, awl-shaped, decurrent lines under the scars of the leaves; which are linear, even, pressed close, scarcely longer than the interstices: the flowers terminating, subumbelled, on peduncles the length of the flowers. It is a native of the Cape of Good Hope.

In the twelfth the stem is fluxuose-erect, ash-coloured, two feet high: the branches opposite, or in threes, cinereous-villose, wand-like: branchlets filiform, scattered, frequent, wand-like: the leaves are in threes, linear-lanceolate; beneath grooved from the revolute margins, tomentose-whitish, from erect spreading, curved a little: the flowers flesh-coloured. It is a native of the Cape of Good Hope, flowering in May and June.

It varies with flowers very hirsute and hairy, red, and whitish flesh-coloured.

The thirteenth species has the leaves three-fold oval, downy-white underneath: the flowers ovate, conic. It is a native of the Cape of Good Hope.

In the fourteenth the branches are round and smooth; branchlets pubescent: the leaves linear-awl-shaped, grooved, spreading, half an inch long, on appressed petioles scarcely half a line in length: the flowers axillary, and of a deep red colour. It is a native of the Cape, flowering at various seasons.

The fifteenth species has the branches filiform, ramentaceous, long, ferruginous: the leaves very narrow, upright, pressed close: the flowers umbelled, of a purple colour. It is a native of the Cape of Good Hope, flowering in July.

The sixteenth has the stem shrubby, smoothish, with pubescent branches: the leaves linear, obtuse, erect, channelled underneath, the length of the joints, hispid or subscabrous: the flowers are umbelled, dispersed on the upper twigs, and of a flesh colour. It is a native of the Cape, flowering from February to May.

The seventeenth has a brown stem, smooth below, hispid at top, erect, a foot high: the branches dichotomous, brown at bottom, and smooth, above ash-coloured, hirsute, erect, fastigiate: branchlets scattered all over the branches, filiform, frequent, hairy-rough, wand-like: the leaves are linear-subulate, entire, smooth, flat above, convex beneath, with a very slender groove, incurved, from erect spreading: the flowers solitary, or two or three together, on very short drooping peduncles, ash-coloured, tomentose. It is a native of the Cape.

The eighteenth species has an erect stem, branched: the leaves linear, bluntish, rugged on the edge, longer than the internodes, on white petioles: the flowers terminating, in threes, or thereabouts, nodding, the size of a pea, on purple peduncles, with alternate, remote, flesh-coloured bractes. It is a native of the Cape, flowering in April and May.

The nineteenth has a shrubby, compound stem: the leaves linear, smooth: the flowers terminating, sessile, of a purple colour. It is a native of the Cape, flowering in August.

The twentieth species has a brown, rugged stem, a foot high: the branches in whorls, like the stem, flexuose-erect; branchlets trichotomous and dichotomous, like the branches: the leaves in sixes, oblong, obtuse, incurved, above three-cornered, flat, beneath grooved, rugged, especially underneath, very finely ciliate, imbricate, a line in length: the flowers aggregate, in whorls, in the middle and at the ends of the branchlets of a blood-red colour. It flowers in April and May.

The twenty-first species has the stem seldom erect, commonly decumbent, smooth, flexuose, filiform: the branches filiform, flexuose, villose: branchlets capillary, frequent, tomentose: the leaves ovate, spreading, rough, with long hairs: the flowers at the ends of the extreme branchlets, peduncled, one, two, or three together, the whole calyxes covered close with a white wool.

The twenty-second has the leaves linear, even the upper ones, ciliate: the flowers terminating, solitary, sessile, of a purple colour.

The twenty-third species has the leaves four-fold, smooth, and long yellow flowers. It flowers from May to August.

The twenty-fourth has the branches compound: the leaves oblong, convex, even, grooved underneath, ciliate, with spinules: the flowers large, heaped on the side into a sort of head, sessile, pubescent: calyx rough, with white hairs, as it were doubled: the corolla bright blood red, rough with white hairs, having the mouth obscurely four-cleft. It is a native of the Cape, flowering most part of the year.

The twenty-fifth species has the branches heaped above the flowers: the leaves linear, bluntish, erect: the flowers heaped, lateral, below the top of the stalk. It is a native of the Cape.

The twenty-sixth species has shrubby filiform stems, covered all round with leaves: the leaves in fours, imbricate in eight rows, very short, elliptic, crowded, obtuse, ciliate, so that they appear villose: the flowers red, in a terminating sessile head. It is a native of the Cape.

The twenty-seventh has the leaves linear and crowded: the flowers peduncled, and nodding. It is a native of the Cape.

The twenty-eighth species is a brown shrub: the branches covered with branchlets in threes, crowded, very short, pubescent, clothed with squarrose leaves; which are also crowded, alw-shaped, subtrigonal, somewhat rugged at the edge, patulous, or standing out at the tip; the flowers solitary, at the ends of the branchlets, drooping, on a short, pubescent peduncle, of a red colour. It is a native of the Cape, flowering from January to March.

The twenty-ninth species is a small shrub, from a foot to eighteen inches in height, decumbent at bottom, then upright, branched, flexible: the leaves are almost covering the whole stem, deciduous, resembling those of the fir, thickish, having a prominent nerve, narrow, very sharp, smooth: the flowers at the tops of the branchlets, on short peduncles, alternate, among the leaves: they come out in autumn, continue closed during winter, and are then green; in May the year following the flowers are unfolded; the anthers which were inclosed are protruded, the calyx and corolla, opening, are both changed into a pale purple or flesh-colour. It is a native of Austria.

The thirtieth species has the leaves linear, four-folded: the flowers large and yellow. It is a native of the Cape, flowering from May to July.

Culture.—These elegant plants must be treated in different methods, according to their nature.

The first three British sorts are capable of being propagated by sowing the seeds, either in the places where they are to remain, or in pots filled with peaty earth in either the autumn or spring seasons, but this is a tedious practice. The best method is, to take them up from the places where they grow naturally in the early autumn, with good balls of earth about their roots, planting them again immediately where they are to grow.

They succeed best where the soil is of the peaty or moory kind, and where it has not been enriched by manure; and as they protrude their roots chiefly near the surface, it should be as little dug about them as possible.

The four following sorts may be increased in the same manner as the former; but the best practice is by layers, cuttings, or slips, which should be laid down or planted out in pots filled with boggy earth, either in the early spring or the latter end of summer, plunging them in a moderate hot-bed, giving them proper shade and water. When they have taken full root, they should be removed with balls of earth about them into separate pots, being replaced in the hot-bed till they become well established, when they will be capable of bearing the open air in mild weather.

All the other species may be increased either by cuttings or layers, but most of them by the former. The cuttings should be made from the best young shoots, and be planted in the spring season in pots filled with a composition of light boggy and loamy earth, being placed in the hot-bed, and covered with bell-glasses, and duely shaded from the sun, slight waterings being given when necessary; the layers are best made in the autumn, being managed in the same way.

When the plants are perfectly rooted, they may be removed into separate pots filled with the same sort of earth, and placed in the dry, stove or green-house, where many of the plants must constantly be kept.

The ninth, twentieth, and twenty-sixth species must, however, be raised by layers, as they have not yet been increased by planting their cuttings.

When seeds are made use of in producing these plants, they should be sown in pots filled with the above sort of earth, in the early spring, and plunged in the hot-bed of the stove. When the plants have acquired a few inches growth, they should be removed into single pots with a little earth about their roots, and be replunged in the hot-bed in the stove, being preserved in it, or the warmest part of the green-house, during the winter.

The first three sorts afford an agreeable variety in the borders and clumps, as they continue long in flower. The four following kinds are likewise hardy, and afford variety among other potted plants in the open air during the summer.

The other species are more tender, but produce an agreeable effect among the stove and green-house collections, from the great beauty and continuance of the flowers in many of the sorts.

2. EPILOBIUM ANGUSTIFOLIUM.

ROSE-BAY WILLOW-HERB.

THIS genus contains a plant of the herbaceous, flowery, perennial kind.

It belongs to the class and order *Octandria Monogynia*, and ranks in the natural order of *Calycanthemæ.*

The characters are: that the calyx is a one-leafed perianthium, four-parted, superior; divisions oblong, acuminate, coloured, deciduous: the corolla has four roundish petals, outwardly wider, emarginate, expanding, inserted into the divisions of the calyx: the stamina consist of eight subulate filaments; the alternate ones shorter: anthers oval, compressed, obtuse: the pistillum is a cylindric germ, extremely long, inferior: style filiform: stigma four-cleft, thick, obtuse, rolled back: the pericarpium is an extremely long capsule, cylindric, streaked, four-celled, four-valved: the seeds numerous oblong, crowned with down: receptacle extremely long, four-cornered, free, flexile, and coloured.

The species cultivated is *E. angustifolium*, Narrow-leaved or Rosebay Willow-herb.

It has a creeping root. The stem is upright, from three to six feet high, branched at top, round, and pubescent; the branches alternate. The leaves alternate, running slightly down the stem, smooth, the edge minutely and rarely indented, the midrib whitish: the lateral nerves are nearly at right angles with this; and the leaves at their first appearance are rolled in at the edge. The flowers are purple, showy, growing in a kind of long spike, on purple peduncles, the length of the germ, bending down before the flowers open, but afterwards erect; seldom more than four or five blow together on the same spike. From the great similitude of the leaves to those of willow, it has obtained the name of Willow-herb, or French Willow.

There is a variety with white flowers.

Culture.—It is readily increased by dividing its creeping roots, and planting portions of them out in moist shady situations where they are to remain, in either the autumn or early spring. The plants may also be raised by sowing the seeds in the same situations. The plants afterwards require only to be kept within proper limits.

They are well suited to shady situations, and for covering rock-work.

PLATE XXV.

1. FRITILLARIA IMPERIALIS.

CROWN IMPERIAL.

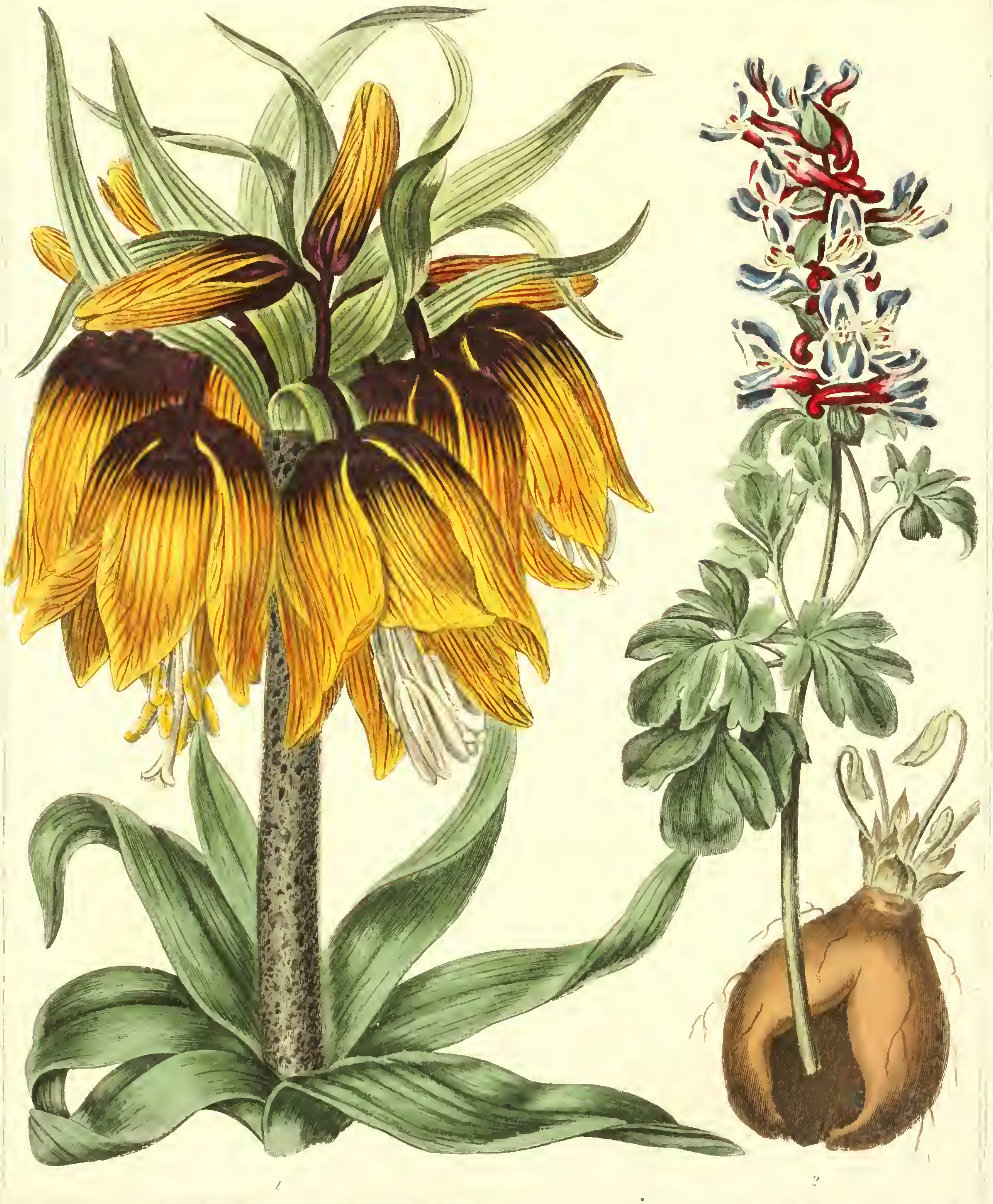
This genus comprises plants of the bulbous-rooted perennial flowery kind.

It belongs to the class and order *Hexandria Monogynia*, and ranks in the natural order of *Coronariæ*.

The characters are: that there is no calyx; the corolla is six-petalled, bell-shaped, spreading at the base: petals oblong, parallel: nectary an excavation or pit in the base of each petal: the stamina have six subulate filaments, approximating to the style, the length of the corolla: anthers quadrangular, oblong, erect: the pistillum is an oblong germ, three-cornered, obtuse: style simple, longer than the stamens: stigma triple, spreading, blunt: (style trifid, with three stigmas:) the pericarpium is an oblong capsule, obtuse, three-lobed, three-celled, three-valved (superior): the seeds very many, flat, semi-orbicular on the outside, in a double row.

The species are: 1. *F. meleagris*, Common Fritillary, or Chequered Lily; 2. F. *pyrenaica*, Black Fritillary; 3. F. *imperialis*, Imperial Fritillary, or Crown Imperial; 4. *F. Persica*, Persian Fritillary, or Persian Lily.

In the first the root is a solid bulb or tuber, about the size of a hazel nut, white or yellowish white, roundish, compressed, divisible into several, enclosed by the withered wrinkled bulb of the preceding year as in a case. The stem from six to twelve, fifteen, and even eighteen inches in height, advancing considerably in length after flowering; it comes out from the side of the root, is simple, upright, round, smooth, glaucous, and not unfrequently purplish: the leaves



Painted by Sydˡ Edwards London Published Augˢᵗ 1 1806 by G. Kearsley Fleet Street Engraved by F. Sansom

1 *Fritillaria imperialis*
Crown imperial

2 *Fumaria cava*
Hollow rooted Fumitory

three or four, sometimes five or six, grass-like, distantly alternate, half embracing, round on the under, and hollow on the upper side, somewhat twisted and glaucous: the flower usually single, sometimes two, or even three, on the top of the stem, large, pendulous, at first somewhat pyramidal, but afterwards bell-shaped, chequered with purple and white, or purple and greenish yellow. It is a native of the southern countries of Europe, flowering in April and May.

There are numerous varieties; the chief are, the Common Purple, the Blood Red, the Great Purple or Red, the White, the Double Blush, the Pure Yellow, the Chequered Yellow, the Great Yellow Italian, the Small Italian, the Small Portugal Yellow, the Black, and the Spanish Black.

The second species has a double fleshy bulbous root: the leaves are broader, and of a deeper green than in the first; the lower leaves are opposite, but those above alternate: the stem a foot and half high, terminated by two flowers of an obscure yellow colour, and spreading more at the brim than those of the first sort, but turned downwards in the same manner. It flowers three weeks after it; and is a native of France.

The third has a large round scaly root of a yellow colour, and a strong foxy odour: the stalk rises to the height of four feet or upwards: it is strong, succulent, and garnished two-thirds of the length on every side with long narrow leaves ending in points, which are smooth and entire: the upper part of the stalk is naked, a foot in length: the flowers come out all round the stalk upon short foot-stalks, which turn downward, each sustaining one large flower. Above these rises a spreading tuft of green leaves, which are erect, and called the Coma. It flowers the beginning of April, and the seeds ripen in July.

The chief varieties are; those with yellow flowers, with large flowers; and with double flowers; but that which has two or three whorls of flowers above each other makes the finest appearance, though it seldom produces its flowers after this manner the first year after removing.

The fourth species has a large round root: the stem three feet high, the lower part closely garnished on every side with leaves, which are three inches long and half an inch broad, of a gray colour, and twisted obliquely: the flowers are in a loose spike at the top, forming a pyramid; shorter than the other sorts, spreading wider at the brim, and not bent down; of a dark purple colour; appearing in May. They seldom produce seeds in this climate.

There is a variety which has a much shorter stem and smaller leaves; the stem branches out at the top into several small peduncles, each sustaining one dark-coloured flower. It is termed Dwarf Persian Lily.

Culture.—The common mode of propagation in all these plants is by off-sets from the sides of their roots, separated every second or third year; the proper time for which is when their flower-stalks decay, taking the whole root up entirely, and separating them into distinct roots, then planting the smaller off-sets by themselves in nursery-beds, to remain a year or two, to acquire a flowering state; and the larger roots, where they are to remain for flowering.

They are likewise capable of being propagated by seed; but this is principally practised for new varieties; and the process is tedious; the Fritillary and Persian Lily being three years, and the Crown Imperial sometimes six or seven, before they flower in perfection. The seeds may be sown in the beginning of autumn, in large wide pots, or in boxes of similar width, filled with light mellow earth, each sort separate, covering them evenly with fine earth half an inch deep, placing the pots, &c. to have only the morning sun all summer, or during hot dry weather, and in the full sun in winter and spring: the plants will appear in the spring, which, after the first or second year's growth, when the leaves decay in summer, may be taken up, and the whole planted immediately in nursery-beds, in shallow drills four inches asunder, to remain till they flower.

They are all hardy, and highly ornamental plants for the borders, clumps, and other parts; the fourth sort being set backwards, the third in the middle, and the others forwards.

2. FUMARIA CAVA.

HOLLOW-ROOTED FUMITORY.

This genus contains plants of the tuberous-rooted low flowery perennial kind.

It belongs to the class and order *Diadelphia Hexandria*, and ranks in the natural order of *Corydales*.

The characters are: that the calyx is a two-leaved perianthium: leaflets opposite, equal, lateral, erect, acute, small, deciduous: the corolla oblong, tubular, ringent, palate prominent, closing the throat: upper lip flat, obtuse, emarginate, reflex: the nectary the base of the upper lip prominent backward, obtuse: the lower lip entirely similar to the upper, keeled towards the base: nectary the keeled base, but in this less prominent: the throat four-cornered, obtuse, perpendicularly bifid: the stamina consist of two equal filaments, broad, one within each lip, enclosed, acuminate: anthers three at the end of each filament: the pistillum is an oblong, compressed germ, acuminate: style short: stigma orbiculate, erect, compressed: the pericarpium is a one-celled silicle: the seeds are roundish.

The species are: *F. cucullaria*, Naked-stalked Fumitory; 2. *F. sempervirens*, Glaucous Fumitory; 3. *F. lutea*, Yellow Fumitory; 4. *F. capnoides*, White-flowered Fumitory.

The first has a scaly root, the size of a large hazel-nut: the flower-stalk is eight or nine inches high: the root-leaves are in pairs, triternate, gashed, smooth, slender; with red petioles: the scape simple, round, length of the leaf, rufous: the raceme terminating, simple; the flowers (four or five) pendulous; of a dull white colour. It is a native of Virginia. Perennial, flowering in June and July.

The second species is annual: the stem upright, a foot and half high, round, and very smooth, sending out several branches at top: the leaves smooth, branching, pale, divided like the common sort.

but the leaflets larger and more obtuse: the flowers in loose panicles from the sides of the stem and at the extremities of the branches, of a pale purple colour, with yellow chaps or lips: the pods are taper, narrow, an inch and half long, containing many small black shining seeds. It flowers during summer, and is a native of North America.

In the third, the root strikes deep into the ground: the stems are many, succulent, diffused, about six inches high: the leaves on long branching petioles, composed of many irregular leaflets, trifid at the top: peduncles axillary, naked, longer than the leaves, supporting eight or nine flowers, of a bright yellow colour, in a loose spike: the leaves continue green all the year, and the flowers in succession from April to October. It is very like the fourth species, but is perennial; and according to Miller, the stalks have blunt angles, are of a purplish colour; and the flowers grow in a looser panicle, on longer pedicles. It is a native of Barbary.

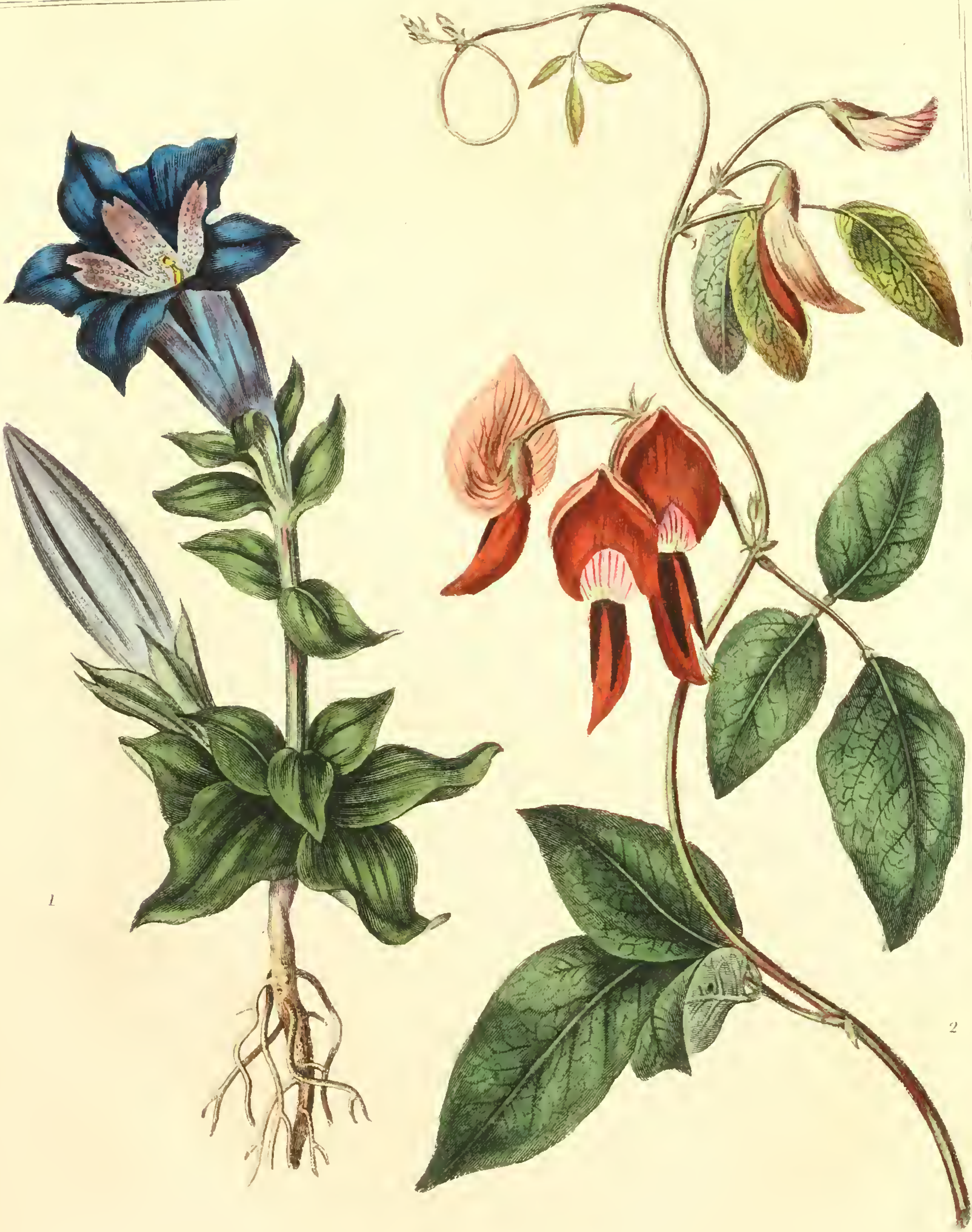
The fourth is annual: the stem four-cornered at the base: the leaves superdecompound, the terminating leaflets larger, and semitrifid; the middle segment lobed; petioles three-cornered: the racemes naked: pedicles shorter by half than the corollas, blackish at the tip. There is a succession of the flowers from May to October. It is a native of the South of Europe.

Culture.—The first sort of these plants may be readily increased, by planting off-sets from the roots in a light soil, in a shady situation, in the beginning of autumn, as soon as the stems begin to decay.

The other sorts may be raised by sowing the seeds where the plants are to grow, as soon as they become perfectly ripened.

The only culture they demand afterwards is, that of keeping them free from weeds.

They are all very ornamental in the fore parts of clumps, borders, and other parts of pleasure-grounds.



Painted by Syd Edwards

London Published Oct 1st 1805 by G. Kearsley Fleet Street

Engraved by F Sansom

1 *Gentiana acaulis.*
Large flowered Gentian

2 *Glycine rubicunda*
Dingy-flowered Glycine.

PLATE XXVI.

1. GENTIANA ACAULIS.

LARGE-FLOWERED GENTIAN.

This genus of plants is of the hardy herbaceous perennial flowery kind.

It belongs to the class and order *Pentandria Digynia*, and ranks in the natural order of *Rotaceæ*.

The characters are: that the calyx is a five-parted perianthium, sharp: divisions oblong, permanent: the corolla has one petal, tubular at bottom, imperforate, at top five-cleft, flat, withering, various in form: the stamina have five filaments, subulate, shorter than the corolla: anther simple: the pistillum is an oblong germ, cylindric, length of the stamens: styles none: stigmas two, ovate: (germ superior; style simple, or two sessile stigmas:) the pericarpium is an oblong capsule, columnar, acuminate, slightly bifid at the tip, one-celled; two-valved: the seeds numerous, small, fixed all round to the walls of the capsule: receptacles two, each fastened longitudinally to a valve.

The species cultivated are: 1. *G. lutea*, Yellow Gentian; 2. *G. punctata*, Spotted-flowered Gentian; 3. *G. asclepiadea*, Swallow-wort-leaved Gentian; 4. *G. acaulis*, Dwarf Gentian, or Gentianella.

The first has a thick root, of a yellowish brown colour, and very bitter taste: the lower leaves are petioled, oblong-ovate, a little pointed, stiff, yellowish green, having five large veins on the back, and plaited: the stem three or four feet high or more, with a pair of leaves at each joint, sessile or almost embracing, of the same form with the lower ones, but diminishing gradually to the top: the flowers are in whorls at the upper joints. It is a native of Switzerland, flowering in June and July.

The second species has the leaves ovate, elongated, and strict: the calyxes shallow, and in form of a basin, the calycine teeth narrow, sharp, and not very leafy: the corolla is of a papery substance, extremely thin, of a dull and very pale greenish straw-colour, with very minute dots thickly and irregularly scattered over it: the segments of the border commonly seven, sometimes eight, but very seldom six, always shorter, narrower, contiguous, rounded, blunt, without any auricles at the base; and finally the bellying of the corolla is blunter and almost the same over the whole bell. It is a native of Austria.

The third has the stem upright near a foot high: the leaves smooth, about two inches long, and three quarters of an inch broad at the base, embracing there, and ending in an acute point; they are of a fine green, have five longitudinal veins, joining at both ends, but diverging in the middle, and diminish in size as they are nearer the top: the flowers are in pairs opposite, on short peduncles; pretty large, bell shaped, and of a fine blue colour. It is a native of Switzerland, flowering in July and August.

The fourth species has a large woody branched root: a set of ovate-lanceolate leaves spreads on the surface: the stem from one to three inches in height, with one or two pairs of leaves on it, and terminated by one very large, upright, handsome flower (in the garden, when the plants are strong, there are sometimes more,) which is of a deep azure blue, dotted on the inside. It is a native of Austria.

Culture.—The three first sorts are easily raised, by sowing the seed in pots soon after it is ripe, as when kept till the spring it will not succeed: the pots should be placed in a shady situation, and kept clean from weeds. Some advise their being sown where they are to remain, but the first is probably the best method. In the spring the plants appear, when they must be duly watered in dry weather, and kept clean from weeds till the following autumn; then be carefully shaken out of the pots, so as not to break or injure their roots; and a shady border of loamy earth should be well dug and prepared to receive them, into which they should be put at about six inches distance each way, the tops of the roots being kept a little below the surface of the ground, and the earth pressed close to the roots. If the following spring prove dry, they should be duly watered, to forward their growth. The plants may remain here two years, by which time they will be fit to transplant where they are designed to grow, removing them in the autumn, as soon as their leaves decay, great care being taken in digging them up, not to cut or break their roots, as that greatly weakens them. They require afterwards no other culture, but to dig the ground about them early in the spring before they begin to shoot, and in the summer to keep them clean from weeds. The roots continue many years, but the stalks decay every autumn; the same roots not flowering two years together, or seldom oftener than every third. When they flower strong, they have, however, a fine appearance.

The first is mostly propagated by off-sets or parting the roots, and planting them where they are to remain in the early autumn; but in order to have the plants flower well, they must not be often transplanted or parted.

They are also capable of being raised from seeds managed as the first sorts.

They all succeed the most perfectly in moist loamy soils, where there is a degree of shade.

All the sorts are useful as ornamental plants, for the various clumps, borders, and quarters of pleasure-grounds; those of low growth being planted towards the fronts, and the latter kinds more backward.

2. GLYCINE RUBICUNDA.

DINGY-FLOWERED GLYCINE.

This genus contains plants of the shrubby climbing kind.

It belongs to the class and order *Diadelphia Decandria*, and ranks in the natural order of *Papilionaceæ*.

The characters are: that the calyx is a one-leafed, compressed perianthium: mouth two-lipped: upper lip emarginate, obtuse: lower longer, trifid, acute: the middle tooth more produced: the corolla is papilionaceous: banner obcordate, the sides bent down, the back gibbous, the tip emarginate, straight, repelled from the keel: wings oblong, towards the tip ovate, small, bent downwards: keel linear, sickle-shaped, bent upwards, at the tip pressing the banner upwards, obtuse, towards the tip broader: the stamina have diadelphous filaments (simple and nine-cleft), only a little divided at the tip, rolled back: anthers simple: the pistillum is an oblong germ: style cylindric, rolled back in a spiral: stigma obtuse: pericarpium an oblong legume: the seeds kidney-form.

The species are: 1. *G. frutescens*, Shrubby Glycine, or Carolina Kidney-bean Tree; 2. *G. bimaculata*, Two-spotted Glycine; 3. *G. rubicunda*, Reddish-flowered Glycine; 4. *G. coccinea*, Scarlet Glycine.

The first has woody stalks, which twist themselves together, and also twine round any trees that grow near, and will rise to the height of fifteen feet or more. The leaves are in shape somewhat like those of the ash-tree, but have a greater number of leaflets. The flowers are produced in clusters from the axils, and are of a purple colour. They are succeeded by long cylindrical legumes, shaped like those of the Scarlet Kidney-bean, containing several seeds, which are never perfected in this climate. It flowers from June to September.

The second species rises with a twining shrubby stalk to the height of six or eight feet and more; multiplying greatly by age, becoming loaded with a profusion of purple flowers growing in racemes; the richness of the corolla is enlivened by two green spots at the base of the banner. For the most part the flowers go off in this climate without producing any seed-vessels. It begins to flower in February, and continues during the summer. It is a native of Botany Bay.

The third has a shrubby, slender, twining stem, five or six feet high and more, red, branched, leafy. The leaves ternate, on petioles from an inch to two inches in length, channelled above, round underneath: leaflets ovate or elliptic, quite entire, the two side-ones on very short petioles, the end one on a petiole half an inch in length, bending and swelling immediately under the leaflet, and having there a pair of deciduous stipules. Almost the whole plant is covered with hairs pressed close.

The flowers are of a purplish-scarlet colour. It is a native of New South Wales, flowering from April to June.

The fourth is a shrubby climbing plant, growing to the height of many feet, if supported, and producing a great number of flowers on its pendent branches. The leaflets nearly round, and in the older ones especially curled at the edges. The flowers for the most part in pairs, of a glowing scarlet colour, at the base of the keel somewhat inclined to purple; the bottom of the banner is decorated with a large yellow spot, verging to green. It flowers from April to June, and is a native of New South Wales.

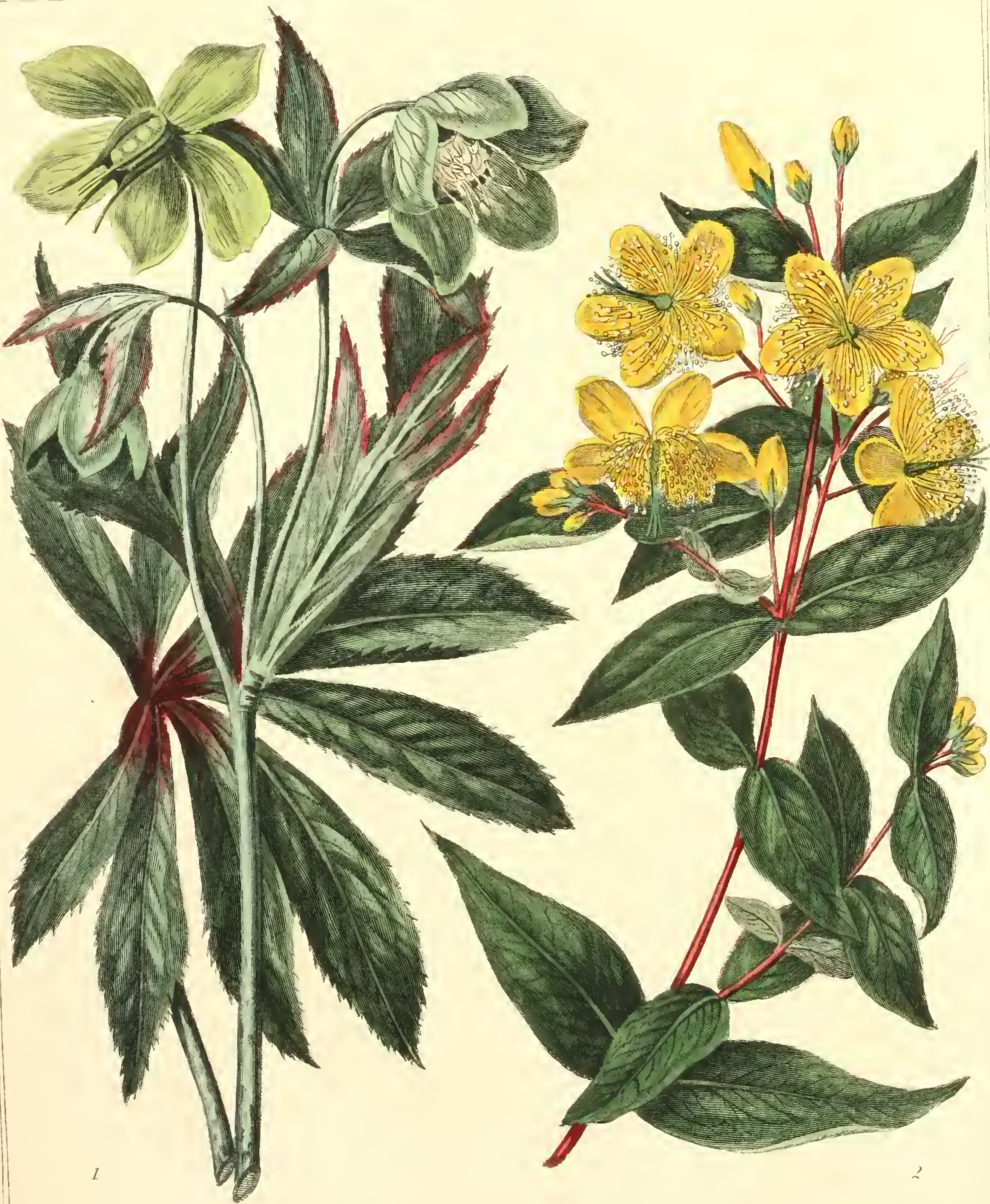
Culture.—The first sort is increased by laying down the young branches in the early autumn. When well rooted in the following autumn, they may be taken off and planted where they are to remain, or in nursery-rows, being watered when the weather is hot, and the roots protected in the winter by some sort of strawy material.

They succeed best in dry warm light soils.

The other sorts may be raised by sowing the seeds, when they can be obtained from abroad or produced here, in pots of light earth, in the early spring, being afterwards removed into other pots, and placed in the green-house or Cape stove. Mr. Curtis, however, suggests that the two last may succeed in the open air, when planted out in warm sheltered situations, and protected in the winter season.

They are all ornamental in their flowery climbing nature; the first in the open ground, and the latter in the green-house and stove collections.

Pl 27.



Painted by Syd Edwards London Publiſh'd Feb 1 1800 by G Kearsley Fleet Street Engraved by F Sanſom

1 *Helleborus viridis*
Green Hellebore

2 *Hypericum hircinum*
Fœtid St Johns-Wort.

PLATE XXVII.

1. HELLEBORUS VIRIDIS.

GREEN HELLEBORE.

This genus contains plants of the herbaceous perennial kind.

It belongs to the class and order *Polyandria Polygynia*, and ranks in the natural order of *Multisiliquæ*.

The characters are: that there is no calyx, unless the corolla, which in some species is permanent, be considered as such: the corolla has five petals, roundish, blunt, large: nectaries several, very short, placed in a ring, one-leafed, tubular, narrower at bottom: mouth two-lipped, upright, emarginate, the inner lip shortest: the stamina consist of numerous subulate filaments: anthers compressed, narrower at bottom, upright: the pistillum consists of about six germs, compressed: styles subulate: stigmas thickish: (five or more:) the pericarpium consists of capsules (leguminous, beaked) compressed, two-keeled: the lower keel shorter; the upper convex, gaping: the seeds several, round, and fixed to the suture.

The species cultivated are: 1. *H. hyemalis*, Winter Hellebore, or Yellow Winter Aconite; 2. *H. niger*, Black Hellebore, or Christmas Rose; 3. *H. viridis*, Green Hellebore; 4. *H. fœtidus*, Stinking Hellebore, or Bear's-foot; 5. *H. lividus*, Livid Purple, or Great Three-flowered Black Hellebore.

The first has a tuberous transverse root, with many dependent fibres, putting up several naked stems or scapes, simple, smooth, round, from an inch or two to four inches in height, terminated by a single leaf, spreading out horizontally in a circle, divided into five parts almost to the base, and the parts simple, or divided into two, three, or four lobes. In the bosom of this sits one large, upright, yellow flower. It is native of Lombardy, and flowers with us from January to March.

The second has transverse roots, externally rough and knotted, with many dependent fibres, and some large roots striking down; the scapes from six inches to near a foot in length, round, upright, variegated with red, rising from a sheath, and terminated usually with one flower, sometimes two, and very rarely three: corolla very large, generally white at first, but frequently with a tint of red, growing deeper with age, but finally becoming green. It is a native of Italy, &c. flowering from December to March. Martyn observes, that "it has the name of *Black Hellebore* from the colour of the root; and of *Christmas Rose*, from the time of flowering and the colour of the corolla."

The third has a round stem, a little branched at top, but not near so much as in the next sort; leafy, reddish at the base, upright, smooth, a foot or eighteen inches in height: the leaves not of a stiff leathery consistence, as in the next species, but soft and of a lighter green; those from the bottom are on long petioles, but those on the stem sit close to their sheaths: the leaflets (seven to ten) lanceolate, acuminate, sharply serrate, smooth, gashed, usually trifid, the divisions sometimes deeply lobed; and at the base of each peduncle is a similar leaf, only smaller: the peduncles axillary, an inch long, round; supporting two (sometimes only one) nodding, green flowers. It is a native of France, &c. flowering in March and April.

The fourth has a small but bent root, with a prodigious number of slender dark-coloured fibres: the stem is from eighteen inches to near a yard in height, towards the bottom round, strong, naked, marked with alternate scars, the vestiges of former leaves; dividing and subdividing at top into many branches, producing great abundance of flowers pendent, of a pale yellowish colour: the leaves composed of eight or nine long narrow lobes, joined at their base, commonly four on each side, united at the bottom, and one in the middle of the foot-stalk, serrate, and ending in acute points; those on the lower part much larger than those on the upper, of a deep green colour. It is a native of Italy, &c. flowering from November or December to April.

The fifth species resembles the third, but differs in having trifoliate leaves, broader and entire, their surface being smoother, and the stalks rise higher than either of the common sorts. It flowers from January to May.

Culture.—The first sort is increased by planting the off-sets from the roots after the leaves are decayed, in the latter end of the summer season, in the places where they are to flower, in patches of several roots together. They have the best effect when intermixed with the Snow-drop, as being of similar growth, and flowering about the same time. The off-sets may be separated from the old plants every three or four years.

The second sort is increased by parting the roots in the autumn, and planting them out in moist warm sheltered situations, in the borders or other parts where the soil is fresh and unmanured. And to have it flower well, it should be protected by glasses in the winter. Some plants may be potted in this intention.

The third and fourth sorts are raised by sowing the seeds in the autumn or early spring, either in the places where they are to grow, or in beds for the purpose, afterwards thinning them out to a few plants, or transplanting them into other beds, at the distance of a foot in the rows.

They rise well from self-sown seed, and succeed in shady situations very well.

The last sort is increased by seeds and parting the roots.

The well ripened seeds should be sown, or the roots planted out, in the autumn, either in pots of light fresh earth, or in warm protected situations in the borders. The plants should afterwards be protected in the green-house, or by hand-glasses in the winter. But they do not increase fast in either of these ways.

These are all ornamental plants; the first sort in the fronts of beds, borders, and clumps; and the third and fourth in the large borders and wilderness parts of pleasure-grounds. The second and last sorts produce a fine effect among collections of potted plants.

2. HYPERICUM HIRCINUM.

FETID ST. JOHN'S WORT.

This genus furnishes plants of the shrubby and under-shrubby, hardy and tender kinds.

It belongs to the class and order *Polyadelphia Polyandria*, and ranks in the natural order of *Rotaceæ*.

The characters are: that the calyx is a five-parted perianthium: segments subovate, concave, permanent: the corolla has five petals, oblong-ovate, obtuse, spreading, wheel-shaped, according to the sun's apparent motion: the stamina have numerous capillary filaments, united at the base in five or three bodies: anthers small: the pistillum is a roundish germ: styles three (sometimes one, two, or five), simple, distant, the length of the stamens: stigmas simple: the pericarpium is a roundish capsule, with the same number of cells as there are styles: the seeds very many and oblong.

The species cultivated are: 1. *H. balearicum*, Warted St. John's-wort; 2. *H. Ascyron*, Great flowered St. Peter's-wort; 3. *H. Androsæmum*, Common Tutsan; 4. *H. Canariense*, Canary St. John's-wort; 5. *H. hircinum*, Stinking Shrubby St. John's-wort; 6. *H. monogynum*, Chinese St. John's-wort.

The first rises with a slender shrubby stalk in this country, about two feet high; but in its native soil it acquires the height of seven or eight feet, sending out several weak branches of a reddish colour, and marked with scars where the leaves have fallen off: the leaves are small, oval, waved on their edges, and having several small protuberances on their under side: they sit close to the branches, half embracing them at the base: the flowers are terminating, large, bright, yellow. It is a native of Majorca.

The second species has a stem a cubit and half high, round, smooth, rufescent: the leaves are pale green, paler underneath, an inch long and half an inch wide, roundish, opposite: the flowers terminating: calyx green: corolla pale yellow, five times as large as in the common sort. It is a native of the Pyrenees.

The third has a perennial, thick, woody root, of a reddish colour, sending out very long fibres: the stems suffruticose or under-shrubby, ancipital two-edged or slightly winged on opposite sides, two feet high and more, branched towards the top, of a reddish colour, and smooth: branches brachiate or decussated, spreading: the leaves opposite, sessile, ovate, entire, smooth, dark green, glaucous on the under side, netted with numerous projecting veins and nerves, which become through age ferruginous: on the stem they are two inches long, and an inch and half broad at the base; those on the branches are smaller, of different sizes, and some of them approaching to lanceolate: the flowers small for the size of the plant, disposed in a cyme: the peduncles round, smooth, usually two or three-flowered, but sometimes one-flowered: the fruit an ovate capsule, assuming the appearance of a berry; at first yellowish green, then red or brownish purple, and lastly almost black when ripe. It is a native of the south of Europe.

The fourth species rises with a shrubby stalk six or seven feet high, dividing into branches at top: the leaves are oblong, set by pairs close to the branches, having a strong odour, but less than those of the fifth: the flowers terminating in clusters, very like those of the fifth. It is a native of the Canary islands, flowering from July to September.

The fifth rises with shrubby stalks three feet high, sending out small opposite branches at each joint: the leaves are oblong, ovate, placed by pairs, sessile, and having a rank smell: the flowers are in terminating bunches. It is a native of the south of Europe, flowering from July to September.

There are varieties; one larger, which is the common one: the other smaller.

The sixth has a root composed of many woody fibres, striking deep into the ground: the stems several, shrubby, near two feet high, covered with a purplish bark: the leaves stiff, smooth, about two inches long, and a quarter of an inch broad, opposite, sessile, of a lucid green on their upper surface, and gray underneath, having many transverse veins running from the midrib to the border: the flowers terminating in small clusters, each on a short peduncle. It is a native of China, flowering from March to September.

Culture.—The first and last sorts are more tender than the others, requiring the protection of the green-house in winter. They are capable of being increased by layers or cuttings. The former are made in the spring on the young shoots, which, when well rooted in the end of summer, may be taken off and planted out in separate pots. The cuttings of the young shoots may be planted in pots in the summer, and plunged in a hot-bed, and when well rooted, removed into separate pots.

The last species may likewise be increased by planting slips of the roots in the spring, in the same manner.

They may also be raised by sowing the seed in pots, in the spring, and plunging them in a hot-bed just to bring up the plants.

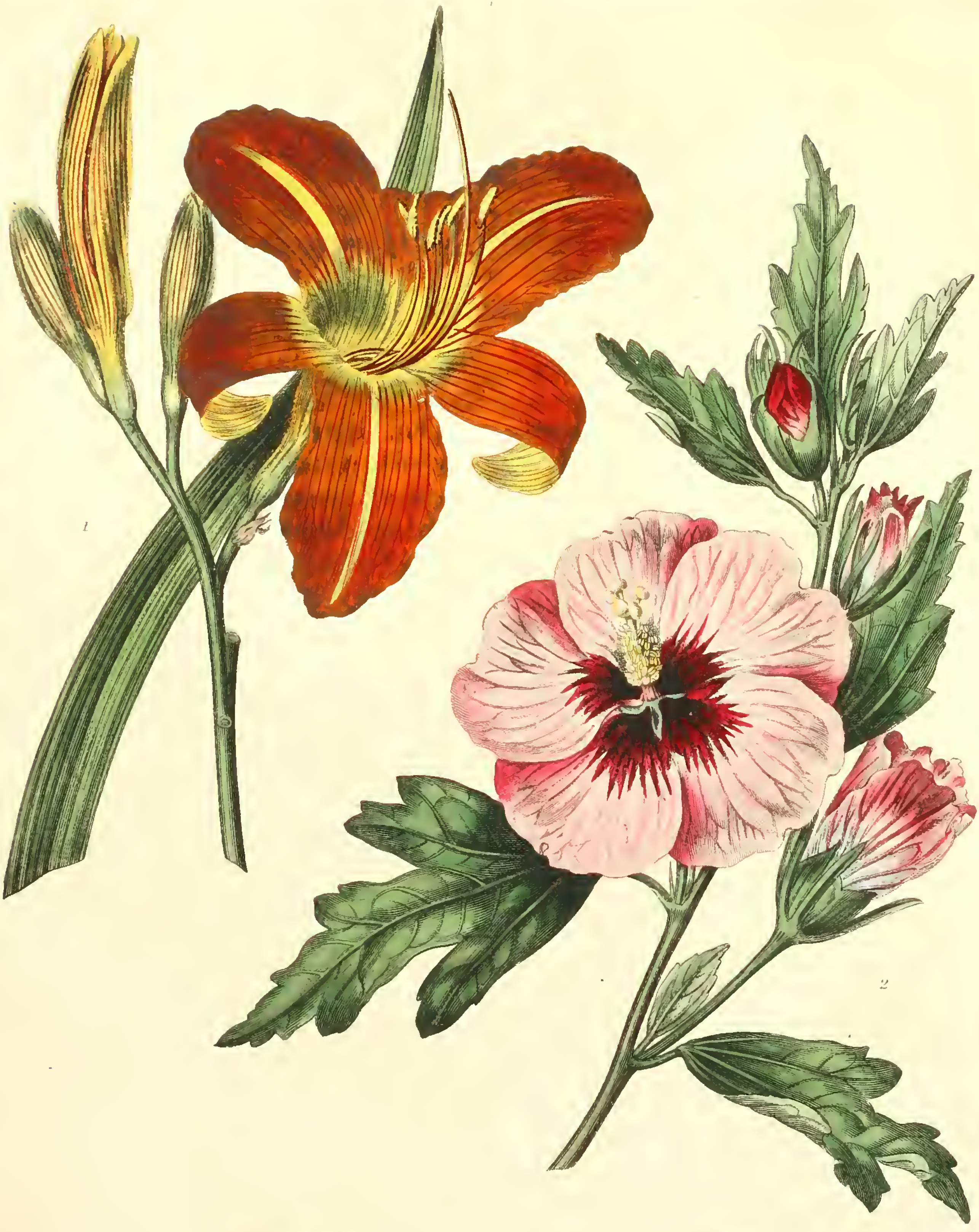
The second and third sorts are readily increased by sowing the seeds in the autumn, in a bed of common earth, or where they are to remain.

They are, however, best raised by slipping the roots, and planting them, at the same time, where the plants are to grow.

The fourth and fifth sorts are easily increased by planting slips from the old roots in the autumn or spring, taken with root fibres to them; or by dividing the roots, and planting them where they are to grow, or in nursery rows.

They may likewise be increased by seeds, sown as in the two former species, removing them in the spring following to where they are to remain.

The two tender sorts afford variety in green-house collections, and the other sorts in the borders, clumps, and other parts of pleasure grounds.



Painted by Syd Edwards — London Publiſhed June 1 1805 by G.Kearsley Fleet Street — Engraved by F Sanſom

1 Hemerocallis fulva
Town Lily

2 Hybiscus syriacus
Altha Frutex

PLATE XXVIII.

1. HEMEROCALLIS FULVA.

TOWN LILY.

This genus contains plants of the herbaceous flowery perennial kinds.

It belongs to the class and order *Hexandria Monogynia*, and ranks in the natural order of *Liliaceæ*.

The characters are: that there is no calyx: the corolla is six-parted, bell-funnel-form: tube short: border equal, spreading, more reflex at top: the stamina have six subulate filaments, the length of the corolla, declining; upper ones shorter: anthers oblong, incumbent, rising: the pistillum is a roundish germ, furrowed, superior: style filiform, the length and situation of the stamens: stigma obtusely-three-cornered, rising: the pericarpium is an ovate-three-lobed capsule, three-cornered, three-celled, three-valved: the seeds very many, and roundish.

The species are: 1. *H. flava*, Yellow Day-Lily; 2. *H. fulva*, Copper-coloured Day-Lily.

The first has strong fibrous roots, to which hang knobs, or tubers, like those of the Asphodel, from which come out leaves, two feet long, with a rigid midrib, the two sides drawing inward, so as to form a sort of gutter on the upper side: the flower-stalks rise two feet and a half high, having two or three longitudinal furrows; these are naked, and at the top divide into three or four short peduncles, each sustaining one pretty large yellow flower shaped like a Lily, having but one petal, with a short tube, spreading open at the brim, where it is divided into six parts; these have an agreeable scent, from which some have given them the title of Yellow Tuberose. It is a nativeof Siberia, &c. flowering in June.

There is a variety with smaller roots; the leaves are not near so long, have not more than half the breadth, and are of a dark green colour: the flower-stalk is a foot and half high, naked and compressed, without furrows; at the top are two or three yellow flowers, which are nearer the bell-shape than the others, and stand on shorter peduncles.

The second species is a much larger plant than the first, and the roots spread and increase much more; the roots have very strong fleshy fibres, to which hang large oblong tubers: the leaves are near three feet long, hollowed like those of the former, turning back toward the top: the flower-stalks are as thick as a man's finger, and rise near four feet high; they are naked, without joints, and branching at the top, where are several large copper-coloured flowers, shaped like those of the Red Lily, and as large. These flowers never continue longer than one, but there is a succession of flowers on the same plants for a fortnight or three weeks. It flowers in July and August.

Culture.—These plants are easily increased by planting the offsets taken from the roots in autumn in any situation, as they are extremely hardy. They afterwards require no other culture, but to keep them clean from weeds, and to allow them room, that their roots may spread.

The first sort may also be increased by seeds, which should be sown in autumn. The plants come up in the following spring, and these will flower in two years.

A moist soil and shady situation are the best suited to their growth; their size, and the great increase of their roots, especially in the second sort, render them most proper for large gardens and plantations, where they produce much variety and effect.

2. HIBISCUS SYRIACUS.

ALTHEA FRUTEX.

THIS genus furnishes plants of the shrubby and flowery exotic kinds.

It belongs to the class and order *Monadelphia Polyandria*, and ranks in the natural order of *Columniferæ*.

The characters are: that the calyx is a double perianthium: outer many-leaved, permanent: leaflets linear: more rarely one-leafed, many-cleft: inner one-leafed, cup-shaped, half five-cleft, permanent: or five-toothed, deciduous: the corolla has five petals, roundish-oblong, narrower at the base, spreading, fastened at bottom to the tube of the stamens: the stamina have very many filaments, united at bottom into a tube, at top (in the apex and surface of this) divided and loose: anthers kidney-form: the pistillum is a roundish germ: style filiform, longer than the stamens, five-cleft at top: stigmas headed: the pericarpium is a five-celled capsule, five-valved: partitions contrary, doubled: the seeds solitary or several, ovate-kidney-form.

The species cultivated are: 1. *H. Syriacus*, Syrian Shrubby Hibiscus, or Althaea Frutex; 2. *H. Trionum*, Bladder Hibiscus, Bladder Ketmia, or Flower of an Hour; 3. *H. Rosa Sinensis*, China Rose Hibiscus; 4. *H. mutabilis*, Changeable Rose Hibiscus, or Martinico Rose.

The first rises with a shrubby stalk to the height of six or seven feet, sending out many woody branches, covered with a smooth gray bark: the leaves have the upper part frequently divided into three lobes, placed alternately on the branches, and stand on short footstalks: the flowers come out from the wings of the stalk at every joint of the same year's shoot; they are large, and shaped like those of the mallow, having five large roundish petals, which join at their base, spreading open at the top in the shape of an open bell: these appear in August, and if the season is not too warm, there is a succession of flowers part of September. The early flowers are succeeded by short capsules; but unless the season proves warm, they do not ripen in this climate. It is usually termed *Althæa frutex* by the nursery gardeners. It is a native of Syria.

There are varieties with pale purple flowers, with dark bottoms; with bright purple flowers, with black bottoms; with white flowers, with purple bottoms; with variegated flowers, with dark bottoms, called *Painted Lady Althæa frutex*; with pale yellow flowers, with dark bottoms; with variegated leaves, and with double flowers.

The second species rises with a branching stalk a foot and a half high, having many short spines which are soft: usually the leaves are divided into three lobes, which are deeply jagged almost to the midrib; these jags are opposite, and the segments are obtuse: the flowers come out at the joints of the stalks upon pretty long peduncles; the outer calyx is composed of ten long narrow leaves, which join at their base; the inner is of one thin leaf, swollen like a bladder, cut into five acute segments at the top, having several longitudinal purple ribs, and is hairy; both these are permanent, and enclose the capsule after the flower is past: the flower is composed of five obtuse petals, which spread open at the top, and form an open bell-shaped flower; these have dark purple bottoms, but are of a pale sulphur colour above, tinged sometimes partially with pale purple on the outside, where they are also ribbed: the capsule is ovate, the consistence of paper, pustuled with protuberances occasioned by the seeds, villose and black. It is annual, growing naturally in Italy, &c. The flowers are of short duration, in hot weather continuing only a few hours open; but there is a succession of them daily for a considerable time, in June, July, and August. It has been long known by the title of Venice Mallow.

There are varieties with erect purplish stems, and the flowers larger, and their colour deeper; and with large paler-coloured flowers.

The third, in its native situation, grows to the size of an ordinary tree; but here it is shrubby, the stem round, erect, with alternate, spreading branches, that are wand-like, leafy, brownish-green, and nearly smooth: the leaves alternate, spreading, unequally and coarsely serrate, entire at the base, five-nerved, bright green, very smooth, except the young ones, which are slightly downy; their petioles are round, downy on the upper side: the stipules in pairs, opposite, at the base of the petioles, linear, acute, deciduous: the flowers axillary, solitary, peduncled, large, of a deep scarlet colour, resembling a double rose. It is common in China and the East Indies. It is rare with single flowers.

The fourth species has a pale stem, single, smooth, spreading out wide into leafy branches at top; the wood resembling that of the fig: the leaves are the same size with those of the vine, having the roughness of fig leaves, and the form of both, or rather of the angular leaves of ivy; whitish underneath: the petioles rough, thick, three or four inches in length: the peduncles thicker towards the top, sometimes tinged with red, sustaining large handsome flowers, which alter in their colour, as at their first opening they are white, then they change to a blush rose-colour, and as they decay they turn to a purple. Martyn remarks, that in the West Indies all their alterations happen the same day; but that in England, where the flowers last near a week in beauty, the changes are not so sudden. It is a native of the East Indies, &c. The period of its blowing in the stoves of this climate is November and December.

It varies with double flowers, from which the single is frequently produced; but the seeds of the single seldom vary to the double kind.

Culture.—The first sort is increased by seeds, layers, and cuttings.

The seeds should be procured from abroad, and sown in pots filled with light earth in the early spring months, plunging them in a gentle hot-bed to bring them forward, or on a border in a warm exposure. They should be watered during the summer, and be protected from frost in the winter. When they have had two years growth, they may be set out in nursery rows, or be planted where they are to remain.

The layers should be laid down in the autumn, the shoots being cut on the backs at one or two joints, and well laid into the ground. They are generally well rooted in twelve months, when they may be taken off and removed to where they are to remain.

The cuttings of the young shoots should be planted in pots of light earth in the early spring, plunging them in a mild hot-bed; or they may be planted in a shady border in the summer season. When well rooted, they should be carefully taken up and planted where they are to remain, either in the autumn or spring.

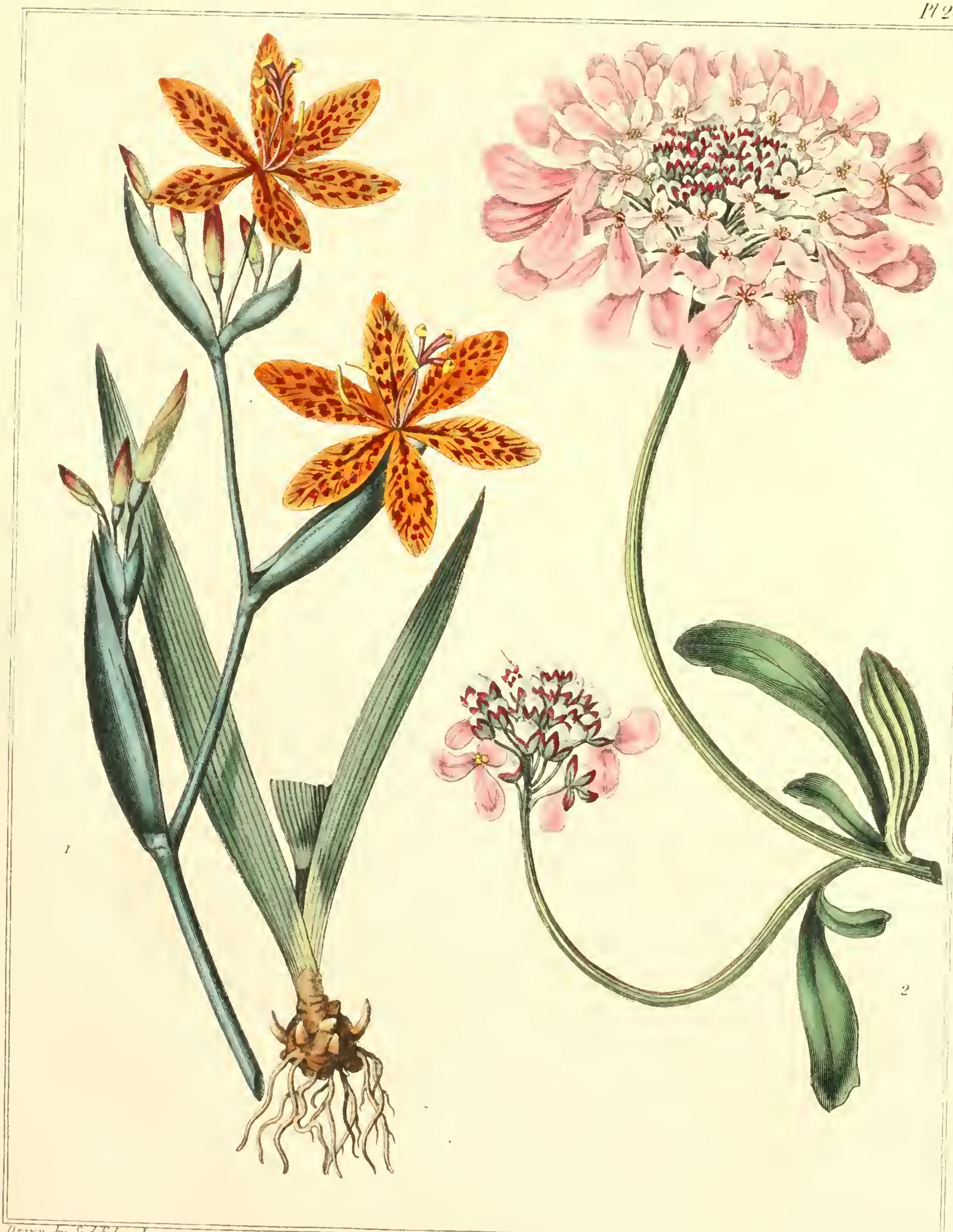
The second sort is increased by sowing the seed either in the autumn or spring, in the places where the plants are to flower, in patches of several seeds together. When they come up, they should be thinned out to two or three plants in each patch.

The two last sorts may be increased by sowing the seeds in the early spring months, in pots filled with rich light mould, plunging them in a moderate hot-bed under glasses, or, what is better, in the bark-bed of the stove. When the plants are up, and have attained two or three inches in growth, they should be removed into separate small pots, watering them well, and replunging them in the hot-bed, where they must be kept.

They may likewise sometimes be raised by planting cuttings of the young shoots in pots of the same sort of earth, in the spring or summer, giving them water, and plunging them in the bark hot-bed. They should afterwards be managed as the others.

The two first hardy sorts are highly ornamental in the borders and clumps, among other flowery plants; and the two last tender sorts produce much variety by their beautiful flowers in the stove and conservatory collections.

Pl 29



Drawn by Syd Edwards

London Publiſhed Sep 1st 1805 by G Kearsley Fleet Street

Engraved by F Sanſom

Ixia Chinensis
1 Chinese Ixia

Iberis Gibraltarica
2 Gibraltar Candy Tuft

PLATE XXIX.

1. IXIA CHINENSIS.

CHINESE IXIA.

This genus contains plants of the herbaceous, bulbous, and tuberous root perennial kind.

It belongs to the class and order *Triandria Monogynia*, and ranks in the natural order of *Ensatæ*.

The characters are: that the calyx is a spathe, bivalve, inferior, shorter than the corolla: valves oblong, permanent, the exterior wider, sheathing the interior: the corolla one-petalled, regular, superior: tube filiform, gradually enlarged, straight: border regular, bell-shaped, six-parted: divisions oblong, obtuse, equal, spreading: the stamina have three filaments, thread-subulate, inserted into the tube near the orifice, shorter than the corolla: anthers oblong, furrowed: the pistillum is an inferior, triangular germ: style simple, filiform, upright: stigmas three, filiform: the pericarpium is an ovate capsule, three-sided, obtuse, three-celled, three-valved: the seeds several, roundish, smooth.

The species cultivated are: 1. *I. Bulbocodium*, Crocus-leaved Ixia; 2. *I. Chinensis*, Chinese Ixia; 3. *I. rosea*, Rose-coloured Ixia; 4. *I. bulbifera*, Bulb-bearing Ixia; 5. *I. aristata*, Bearded Ixia; 6. *I. flexuosa*, Bending-stalked Ixia; 7. *I. polystachia*, Many-spiked Ixia; 8. *I. maculata*, Spotted Ixia; 9. *I. crocata*, Crocus-flowered Ixia.

The first has a roundish bulb, placed on the withered bulb, double the size of a pea, white, covered with a bay-coloured skin: the leaves three or four, in the flowering plant radical, in the fruiting cauline, spreading horizontally, half a foot or thereabouts in length, smooth, sharpish: the stem solitary, upright, two inches high, above the uppermost leaf, convex on one side, flat on the other; in the fruiting plant a little higher, in the cultivated one sometimes half a foot in height: the spathe terminating, two-valved: leaflets narrow-lanceolate, acute, concave, opposite; one upright, green, almost the length of the corolla; the other a little shorter, green on the back, but otherwise membranaceous and pellucid, patulous, whence the flower becomes as it were lateral. It is inodorous, and a native of Italy, flowering about the middle of April.

It varies with white and yellow flowers, with purplish and yellow flowers, with blue and white flowers, with white flowers, and with variegated flowers.

The second species has the scape round, fistulous, jointed, upright, simple at bottom, panicled-dichotomous or trichotomous at top, smooth, almost the thickness of a finger, two feet high: the leaves alternate, embracing, equitant, acute, entire, striated, smooth, the lower a little longer, about half the length of the stem, a span long and more: the flowers from the tips of the branches of the panicle, in umbels, from three to seven, peduncled: peduncles striated, one-flowered, an inch long: the spathe under the divisions and the umbel, withered. In India, the stalks rise to the height of five or six feet, but in this climate they are seldom more than half that height. The flowers are of a yellow colour within, and variegated with dark red spots; the outside is of an orange colour: these appear in July and August, and in warm seasons are succeeded by seeds. It is a native of the East Indies, &c.

The third has an ovate bulb, smooth, subtruncated: the scape three (or four) cornered, sheathed at bottom, branched, few-flowered, smooth, from a hand to a span in height: the leaves acute, grooved, smooth, the lowest, which is the longest, frequently double the length of the scape, or more, is lax and reflex; the two or three others are about the length of the scape, and upright: the flowers at the ends of the branches rather large, coming out one after the other: the outer spathe ovate, green; inner lanceolate, acute, membranaceous, sheathing the capsule.

It varies with the three inner segments of the corolla yellow, and the three outer green; with the three inner white-yellow, the three outer greenish; with the three inner blue-white, the three outer greenish; with the three inner white, the three outer green; with corollas wholly yellow; or wholly blue, or rose-coloured with a yellow base; also in the size of the flowers.

The fourth species has the scape simple or branched, somewhat compressed, striated, smooth, sheathed at bottom with leaves, from a hand to a foot in height: the leaves nerved and striated, distich, upright, smooth, a span long: the flowers three or more, large, with the rachis between the flowers flexuose: the spathe nerved and netted, gray, with a dusky tip: tube of the corolla only a line in length: border divided beyond the middle, but not to the tube: segments large, ovate-oblong, very blunt, spreading.

It varies with the corolla purple, red and white, yellow; with the scape very short and simple, higher and branched, and bulbiferous.

The fifth has a netted bulb, the size of a hazel nut: the scape simple, round, upright, smooth, from a hand to a foot in height and more: the leaves four or five, linear, five-nerved, the middle nerve and edges thicker, acute, upright, shorter by half than the scape: the flowers pointing one way (very seldom one only) on two branches, often from five to nine on a scarcely flexuose rachis: the spathes submembranaceous, awn-toothed: the corollas white flesh-coloured.

It varies with the segments of the borders of the corolla of a deep and elegant purple-violet colour within, three of them of the same colour on the outside, but the three others alternately of a pale dirty violet; one of these with two on the side of it has a double band in the throat meeting at one end; and, according to Mr. Salisbury, with whitish corollas, having a purple star, violet-coloured and yellow. In Miller's figures, with the corolla of a beautiful purple on the outside, but white within, and the stem terminated by two or three flowers; with the stalk terminated by two large flowers; the outside of a violet colour, edged with white, and the inside pale blue: and with one flower, and the corolla of a most beautiful purple colour both within and without.

The sixth species has a very small round bulb: the leaves three or four, long, slender, grass-like, dark green: the stem very slender, round, a foot and half high: at the top the flowers are collected in a spike sitting close to the stalk, each having a thin, dry spathe, which covers the capsule after the flower is fallen. The corolla is pure white, and small.

The seventh species has a bulb the size of a hazel nut: the leaves three or four, many-nerved, upright, smooth, half the length of the scape: the scape round, smooth, upright, many-spiked, from a foot to two feet in height: the branches alternate, capillary, upright, a finger's length: the flowers on the scape and branches in spikes, on a flexuose rachis of a finger's length: the spathes submembranaceous and awned. The flowers appear in May.

It varies with the corollas yellow and violet, of one colour.

The eighth species has the bulb double the size of a hazel nut: the leaves three, four, or five, many-nerved, half the length of the scape: the scape usually simple, seldom many-spiked, round, upright, from a span to a foot high and more: branches filiform, upright, or spreading very much: flowers in terminating spikes, on a flexuose rachis: spathes membranaceous, gray at the base, brown at the tip, somewhat jagged: the corolla, above the mouth of the tube, has a dusky spot at the base of the border.

According to Miller, the stalk is slender, stiff, a foot and half long, naked to the top, where it is terminated by a round bunch of flowers, each enclosed in an oblong spathe, which is permanent, and splits open on one side: the flowers are on short peduncles, deep yellow with a dark-purple bottom. It flowers in May and June.

The ninth has the bulb a little larger than a hazel nut: the leaves about five, reflex-subfalcate, many-nerved, from an inch to a finger's length, half or one-third of the length of the scape: the scape simple, round, or branched, somewhat flatted, flexuose, upright, smooth, from a hand to a span in height: the branches spreading very much, naked, like the scape: the bractes gray at the base, ferruginous at the tip, slightly toothed and jagged: the flowers pointing one way, handsome, bell-shaped, with a short tube, orange-coloured with a paler hyaline or transparent mark above the mouth of the tube: seldom two, but most commonly five or seven. It is one of the handsomest of the Ixias, and like other sorts becomes handsomer and more branched by cultivation.

It varies with a short, simple, few-flowered scape, and a dark spot above the windowed or hyaline one, with a lofty, many-spiked, many-flowered scape, and with bright red flowers.

Culture.—These plants may be increased by seeds or off-sets.

The seeds of such sorts as can be procured should be sown in pots filled with light earth, in the spring, plunging them in a mild hot-bed. When the plants have attained some growth, they should be removed into separate pots of the same earth, being placed under the protection of a frame till they have taken root. They should be placed during the winter in a hot-bed frame. They may afterwards be removed into warm borders, being protected from frosts in the winter, and a few retained in pots under the frame, or in a dry stove

They are three or four years in flowering when raised from seeds.

The common way is therefore to increase them by planting off-sets from the roots, which are afforded in great plenty; the proper season for this is in the early spring, before the shooting of the root, when the roots should be removed, and the off-sets taken off and planted out.

The old roots should not be removed oftener than every three years.

When the stems and leaves decay to the roots in the borders in autumn, they should be covered over with tan a few inches thick, to protect them from frost and the depredations of mice.

The hardy sorts serve to adorn the borders in the open ground, and the other tender sorts among other potted green-house plants, that require protection in winter.

2. IBERIS GIBRALTARICA.

GIBRALTAR CANDY TUFT.

This genus contains plants of the herbaceous, annual, perennial, and under-shrubby kinds.

It belongs to the class and order *Tetradynamia Siliculosa*, and ranks in the natural order of *Siliquosæ*, or *Cruciformes*.

The characters are: that the calyx is a four-leaved perianthium: leaflets obovate, concave, spreading, small, equal, deciduous: the corolla is four-petalled, unequal: petals obovate, obtuse, spreading: claws oblong, upright: of these the two exterior petals are far larger, and equal to each other: the two interior very small, reflex: the stamina have six awl-shaped filaments, upright: of which the two lateral ones are shorter: anthers roundish: the pistillum is a roundish, compressed germ: style simple, short: stigma obtuse: the pericarpium is an upright, suborbiculate, compressed silicle, emarginate, surrounded by a sharp edge, two-celled: partition lanceolate: valves navicular, compressed, carinated: the seeds a few, and subovate.

The species are: 1. *I. umbellata*, Purple Candy-tuft; 2. *I. amara*, White Candy-tuft; 3, *I. linifolia*, Flax-leaved Candy-tuft; 4. *I. odorata*, Sweet-scented Candy-tuft; 5. *I. rotundifolia*, Round-leaved Candy-tuft; 6. *I. semperflorens*, Broad-leaved Evergreen Candy-tuft; 7. *I. sempervirens*, Narrow-leaved Evergreen Candy-tuft; 8. *I. Gibraltarica*, Gibraltar Candy-tuft.

The first has an annual root, white, oblong, fusiform: the stem upright, leafy, half a foot, or from a span to a foot in height, subangular, green, smooth, branching: the leaves are frequent, alternate, lanceolate, acuminate, smooth: the flowers in a hemispherical corymb, on peduncles half an inch in length, of a pale purple colour. It is a native of the south of Europe, flowering in June and July.

There are varieties with bright purple flowers, and with white flowers.

The second species resembles the first very much, but is smaller: the stem is seven or eight inches high, pubescent, somewhat rugged, branched: branches diffused, alternate, the lower ones sometimes opposite, not rising all to the same height: the leaves are alternate, oblanceolate, or linear-lanceolate, blunt, sessile, decurrent, bright green, thickish, smooth, the lower ones serrate, the rest toothletted, especially in front, or with a tooth or two on each side: the flowers white, in a terminating spike-like raceme: or rather, in a corymb lengthened into a raceme as the inflorescence advances. It is a native of Switzerland, &c.

The third has a simple, white, twisted root, having few fibres: the root-leaves lanceolate-linear, serrate, withering and falling as the stem advances: stem-leaves linear, quite entire, sessile, few, gradually shorter, sharpish: the stem herbaceous, straight, slender, branched at top: branches mostly bifid: the flowers of a purple colour, in corymbs, the outer ones peduncled, with the two other petals larger. It is a native of Spain, &c. and is annual, flowering in July.

The fourth species seldom grows so large as the first, and the flowers are much smaller, but have an agreeable odour. They are in close corymbs, and are of a snowy whiteness. It is a native of Geneva.

The fifth has a creeping stem: the leaves are smooth, soft: those next the root quite entire and petioled, those on the stem smooth and entire: the flowers are reddish purple, almost regular, in racemes, on spreading peduncles. It is a native of Switzerland, flowering from May to July.

The sixth species is a low shrubby plant, which seldom rises above a foot and half high, having many slender branches, which spread on every side, and fall towards the ground if they are not supported. These branches are well furnished towards their extremity with leaves, which continue green all the year: and in summer the flowers are produced at the end of the shoots, are white, and grow in an umbel, continue long in beauty, and, being succeeded by others, the plants are rarely destitute of them from the end of August to the beginning of June. It is a native of Persia, &c.

There is a variety with white striped leaves.

The seventh is of humbler growth than the sixth, seldom rising more than six or eight inches high, the branches rather herbaceous: the leaves continue green through the year, and the flowers are of as long duration as those of the sixth species. It is a native of the Island of Candia, flowering from April to June.

In the eighth species the stems are many, thick, green, striated, ascending from a foot to eighteen inches in length, divided into several branches: the leaves alternate, gradually widening from a narrow base, ending in a blunt point, thick, smooth, veinless except in the middle, dark green above, somewhat paler underneath: the flowers terminating in corymbs, at first white, afterwards pale purple, without scent. It is a native of Spain, flowering early in the spring.

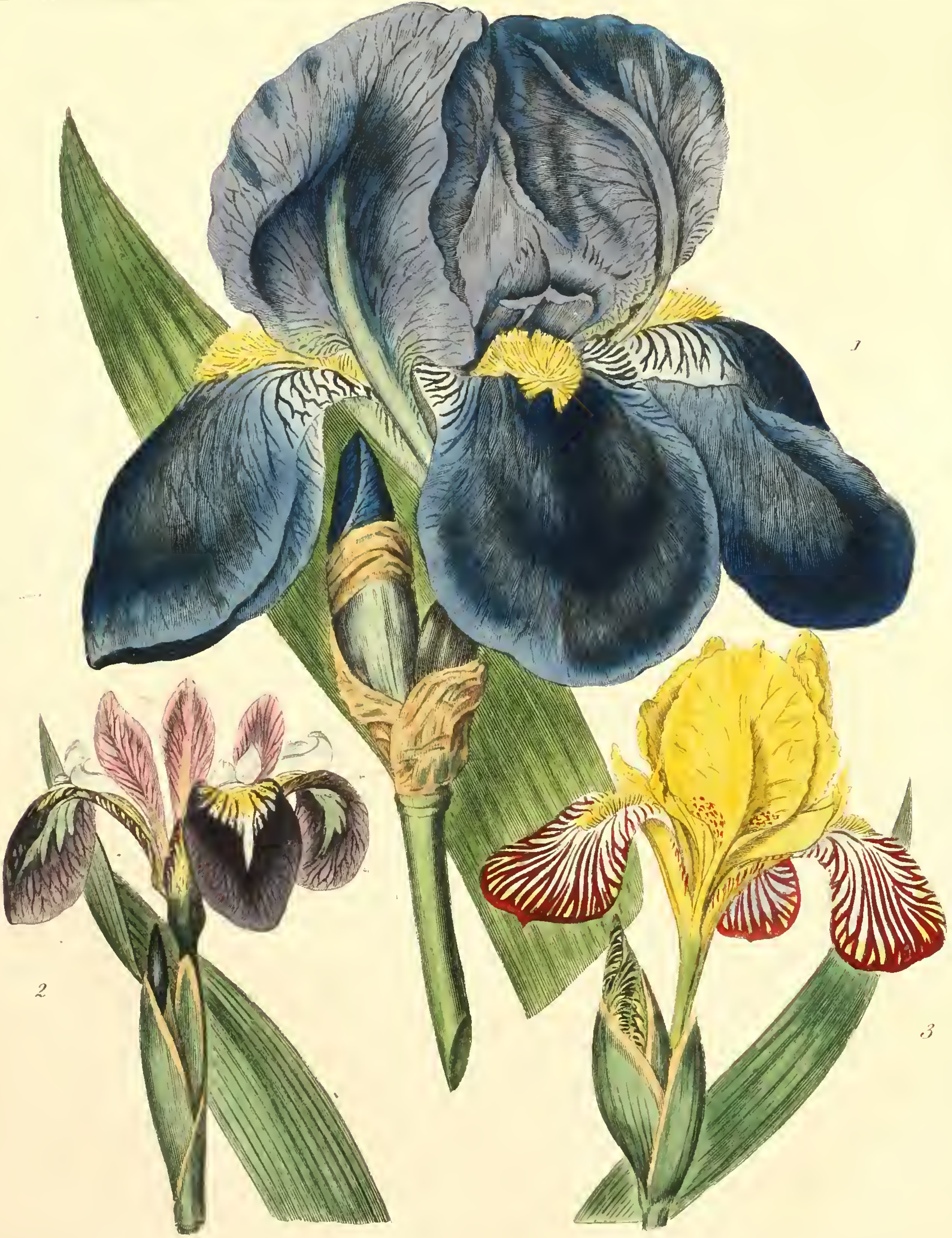
The stems are ridged and woody, and the leaves larger and less bluntly toothed in the cultivated plant. The flowers are also twice as large.

Culture.—The four first annual sorts must be raised annually from seed, by sowing it at different times in the spring, in patches, in the fronts of borders, clumps, and other parts of pleasure-grounds, where the plants are to flower, thinning them properly afterwards.

The fifth sort may be raised by planting the root off-sets and cuttings as below.

The three shrubby perennial sorts may be increased by slips and cuttings, which should be planted out in pots, plunging them in a moderate hot-bed, or in a warm shaded border in the later spring and early summer months, water being occasionally given. When well rooted in the autumn, they should be removed into pots, being protected in the winter season in the green-house.

The first sorts are very ornamental in the open ground, when properly varied. And the latter in green-house, and other potted collections. A few of them may likewise be set out in the warm shrubbery borders.



Painted by Syd Edwards London Publiſhed Aug. 1. 1806. by G.Kearsley Fleet Street Engraved by F.Sanſom

1 Iris germanica
German Iris

2 Iris versicolor
Various coloured Iris

3 Iris variegata
Variegated Iris

PLATE XXX.

1. IRIS GERMANICA.

GERMAN IRIS.

2. IRIS VERSICOLOR.

VARIOUS-COLOURED IRIS.

3. IRIS VARIEGATA.

VARIEGATED IRIS.

This genus contains plants of the fibrous, tuberous, and bulbous-rooted flowery herbaceous perennial kinds.

It belongs to the class and order *Triandria Monogynia*, and ranks in the natural order of *Ensatæ*.

The characters are: that the calyx has bivalve spathes, separating the flowers, permanent: the corolla six-parted: petals oblong, obtuse; the three exterior ones reflex, the three interior upright and sharper; all connected at the claws into a tube, of different lengths in the different species: the stamina have three awl-shaped filaments, incumbent on the reflex petals: anthers oblong, straight, depressed: the pistillum is an inferior oblong germ: style simple, very short: stigmas three, petal-form, oblong, carinated within, furrowed without, incumbent on the stamens, two-lipped: outer lip smaller, emarginate: inner larger, bifid, subinflected: the pericarpium is an oblong, cornered capsule, three-celled, three-valved: the seeds several and large.

The species cultivated are: 1. *I. pumila*, Dwarf Iris; 2. *I. susiana*, Chalcedonian Iris; 3. *I. Florentia*, Florentine Iris; 4. *I. biflora*, Twice-flowering Iris; 5. *I. aphylla*, Leafless Iris; 6. *I. variegata*, Variegated Iris; 7. *I. Germanica*, German Iris; 8. *I. sambucina*, Elder-scented Iris; 9. *I. squalens*, Brown-flowered Iris; 10. *I. cristata*, Crested Iris; 11. *I. tricuspis*, Trifid-petalled Iris; 12. *I. Xiphium*, Bulbous-rooted Iris; 13. *I. Pseudacorus*, Common Yellow or Water Iris; 14. *I. fœtidissima*, Stinking Iris; 15. *I. Virginica*, Virginian Iris; 16. *I. versicolor*, Various-coloured Iris; 17. *I. ochroleuca*, Pale-yellow Iris; 18. *I. verna*, Spring Iris; 19. *I. Persica*, Persian Iris; 20. *I. graminea*, Grass-leaved Iris; 21. *I. spuria*, Spurious Iris; 22. *I. Sibirica*, Siberian Iris; 23. *I. Martinicensis*, Martinico Iris; 24. *I. Pavonia*, Peacock Iris; 25. *I. tuberosa*, Snake's-head Iris.

The first has the root brownish on the outside, white within, knobbed, with pale fibrils: the leaves acute, sometimes shorter, sometimes longer than the flower: the stem or scape very short, often scarcely an inch in length: germ oblong, bluntly and obscurely three-cornered, an inch long, enclosed within two spathes, ending in the tube of the corolla, which is slender, and from two to three inches in length: all the petals are almost entire, blue or purple, varying much in colour, insomuch that the same flower changes, and from blue becomes more and more red: outer beards blue, inner white, with yellow tips. It is a native of Austria, flowering in April.

There are varieties with white flowers, with straw-coloured flowers, with pale blue flowers, with blush-coloured flowers, with yellow variable flowers, with blue variable flowers.

The second species has the scape simple, round, grooved, a span high: the leaves alternate, sheathing, upright, very finely striated, obscurely waved: the corolla the largest of all the species, very thin: the claws of the larger petals purple on the outside, dotted and streaked with purple within; border suborbiculate, waved, bent in at top, upright: border of the smaller petals ovate, bent down, with the edge frequently bent back, blunt, of the same colour with the larger ones, but shorter and narrower; the claws bearded within from the flexure to the base with brownish-yellow cilias. It flowers at the end of May or beginning of June, and is a native of the Levant.

The third has the scape round, striated, simple, upright, a foot high and more, bearing two or three flowers: the leaves nerved, subfalcated, obscurely curved on the outer edge: the lower petals connate at the base: the claws of the larger ones thickish, with a thin winged edge, an inch long, green on the outside, bearded within, with white cilias, yellow at the top: border blunt, emarginate, an inch wide, a little more in length, hanging down, white, striated near the flexure: smaller petals oblong, from upright bent in with a reflex margin, blunt, emarginate, white: claws thickish, attenuated, greenish. It is a native of the South of Europe, flowering in May and June.

The fourth species has the scape simple, striated, longer than the leaves, a span in height, sustaining two or three flowers, sometimes four: the leaves subfalcated, acute, striated, from erect patulous: the petals violet-coloured, entire: capsule cylindric, with three streaks. It is a native of Portugal, flowering in April and May, and again in autumn, whence the name.

The fifth has three or four large bright purple flowers, which stand above each other, and have purplish sheaths: the three bending petals or falls are striped with white from the base to the end of the beard: the capsules are large, blunt, and triangular. It flowers at the end of May. Its native place is unknown.

The sixth species has the scape striated, scarcely longer than the leaves, a foot and more in height: leaves acute, striated, upright; the lower ones the length of the scape, but the upper ones gradually shorter: the flowers at the top of the scape divided, alternate, coming out successively, handsome, yellow, netted with black: the upper part of the stem is naked, and divides into three branches, each of which has two or three flowers one above another: the three upright petals or standards are yellow, and the bending petals or falls are variegated with purple stripes. It flowers in June, and is a native of Hungary.

The seventh has the scape divided at top, larger than the leaves: the leaves reflex-falcated, nerved, an inch wide: the flowers blue, with the smaller petals quite entire, having an agreeable scent: the stalks rise near four feet high, and divide into several branches, each supporting three or four flowers, which are covered with a thin sheath; the three bending petals or falls are of a faint purple inclining to blue, with purple veins running lengthwise: the beard is yellow, and three erect petals or standards are of a bright blue, with some faint purple stripes. It is a native of Germany, flowering in May and June.

The eighth species has the scape divided at top, longer than the leaves, two (or three) feet high: the leaves inflex-falcated at top, striated, the upper ones gradually shorter. It resembles the seventh, from which it differs in having the larger petals of a deeper violet colour, and sub-emarginate; the smaller petals emarginate, and of a deeper blue colour: the stigmas acute and serrate, with a blueish keel. It derives the trivial name from the smell of the flowers, which is very like that of Elder in bloom. It flowers at the end of May, and in June, and is a native of the South of Europe.

In the ninth, the roots are very thick, fleshy, and divided into joints, spreading just under the surface of the ground: they are of a brownish colour on their outside, but white within: the leaves rise in clusters, embracing each other at their base, but spread asunder upwards in form of wings: they are a foot and a half long, and two inches broad, having sharp edges, ending in points like swords: the stalks between these, which are a little longer than the leaves, having at each joint one leaf without a foot-stalk; these diminish in their size upwards: the stalks divide into three branches, each of which produces two or three flowers one above another at distances, each enclosed in a sheath: they have three large violet-coloured petals which turn backward, and are called falls: these have beards near an inch long on their midrib towards their base, and have a short arched petal which covers the beard, with three broad erect petals of the same colour, called standards: the stamina lie upon the reflexed petals. It flowers in June. It is a native of the South of Europe.

There are varieties with blue standards and purple falls, with pale purple standards, with white standards, and with a smaller flower.

The tenth species has a tuberous, creeping root: the stems several, short, inclining upwards, compressed, leafy: the leaves scarcely six inches long, sharpish, a little curved like a sickle at the tips, entire, with a pale membranaceous margin: the flower generally solitary, a little shorter than the leaves, erect, of a pale purplish blue: outer petals drooping, obtuse, blue, with deeper blue spots, crested in the place of the beard with three longitudinal, elevated, waved ribs, variegated with orange and yellow; inner petals narrower, pointed, uniform in colour. It is a native of North America; flowering in May.

In the eleventh species, the bulb is the size of a hazel nut: the scape simple, round, jointed, upright, bearing one or two flowers, a foot and half in height: the leaf single, nerved, upright, with the tip hanging down, two feet long: the border of the larger petals white, suborbiculate, with a point; claws green on the outside, yellow within, dotted with black: the smaller petals several times shorter and less: claws convex on the outside, green, concave within, dotted with brown, the length of the larger ones, but narrower; segments lanceolate, divaricating, a line in length, the middle one of the three a little longer, white dotted with brown. It is a native of the Cape.

It varies in the shape of the larger petals, and much in the colours, as blue, purple, yellow, white, and spotted.

The twelfth has the leaves channelled and convoluted, not only at the base, as in the other species, but the whole length of them; they are awl-shaped at the tip, and shorter than the scape: the flowers are blue, with emarginate petals. It is a native of the South of Europe.

There are varieties with blue flowers, with violet-coloured flowers, with white flowers, with purple flowers, with yellow flowers, with blue standard petals and white falls, with blue standards and yellow falls, with striped flowers, the broad-leaved with blue flowers, the broad-leaved purple-flowered, the sweet-scented blue-flowered, the sweet-scented purple flowered, with variegated sweet-scented flowers, and the double-flowered.

The thirteenth has a fleshy root, the thickness of the thumb, spreading horizontally near the surface, blackish on the outside, reddish, and spongy within, the upper part covered with numerous ridged fibres, the lower part sending down many long, whitish, wrinkled, stringy roots: the leaves from the root two or three feet long, upright, an inch or more in breadth, striated, having a prominent longitudinal midrib, equal to the scape, deep green, smooth: stem-leaves shorter, forming a sheath at the bottom: scapes from one to three feet in height, upright, alternately inclined from joint to joint, round or flatted a little, smooth and spongy: the peduncles axillary, flat on one side, and smooth; each sustaining two or three flowers, the two outer (when there are three) having one sheath, and middle flower two. It is common in most parts of Europe; flowering at the end of June, or the beginning of July.

The fourteenth species has a thick, tufted, fibrous root: the leaves grass-green, when broken emitting a strong odour, not much unlike that of hot roast beef at the first scent. They are acute and nerved, rather shorter than the scape; which is single, cylindrical, but angular on one side, jointed, sheathed with alternate spathaceous leaves, two feet high, bearing several flowers. It is a native of France, &c.

The fifteenth has the root white within, black without, the thickness of the thumb, having white fibres, and bristly at top, with the remains of leaves: the scape compressed, upright, jointed, sheathed with alternate leaves, many-flowered, the length of the leaves, or a little higher, a foot in length: the leaves narrow, sharp, curved-in at the tip, nerved and smooth, as is the whole plant: the spathes membranaceous, acute, brownish, shorter than the peduncles, very thin at the edge and tip: the peduncles two or three inches long, round, slender, upright, one-flowered: the flowers elegant, but without scent: claws of the outer petals channelled, green on the outside, yellow on the inside, streaked with dark purple: border flat, rounded-ovate, blunt, quite entire, pale at the base, then blue with deep-blue streaks: inner petals spatulate, blunt, upright, shorter, bluer and streaked. It is a native of Virginia, flowering here in June and July.

The sixteenth species has the scape jointed, bifid at the top, or simple, many-flowered, higher than the leaves, two feet in length: the leaves alternate, sheathing; the upper ones gradually shorter: the flowers blue, large. Mr. Curtis remarks, that it has, for the most part, a stalk unusually crooked or elbowed. It is a native of North America, flowering in May and June.

The seventeenth has the scape round or roundish, covered with the sheaths of leaves, many-flowered, longer than the leaves, a foot high: the leaves falcated, acute, striated, nerved: spathes membranaceous at the edge: the larger petals dilated at the base with dusky veins; lesser snowy-white, with yellowish veins at the base: stigmas snowy-white. From its being the highest of the species of Iris cultivated in gardens, Mr. Curtis has named it *Tall Iris.* It is a native of the Levant, flowering in July.

The eighteenth species has tufted fibrous roots, from which arise many grass-like leaves about nine inches long; from between them come out the stalks, which are shorter than the leaves, and support one purple flower with blue standards. It flowers in May, and is a native of North America.

The nineteenth has an oval bulbous root, from which come out five or six pale-green leaves, hollowed like the keel of a boat, about six inches long, and one inch broad at the base, ending in points: between these the flower-stalk arises, which is seldom above three inches high, supporting one or two flowers, enclosed in spathes: these have erect petals or standards, of a pale sky-blue colour, and three reflexed petals or falls, which on their outside are of the same colour, but the lip has a yellow streak running through the middle, and on each side are many dark spots, with one large deep-purple spot at the bottom: the leaves are striated and nerved, unequal, and a span in length. It is a native of Persia.

This is greatly esteemed for the beauty and extreme sweetness of its flowers, as also for its early appearance in the spring, being generally in perfection in February or the beginning of March, according to the season.

Martyn observes, that " like the Hyacinth and Narcissus, it will blow within doors in a water-glass, but stronger in a small pot of sand or sandy loam, and a few flowers will scent a whole apartment."

The twentieth species has narrow, flat, glass-like leaves, about a foot long, of a light-green colour; between these arise the stalks about six inches high, having two narrow leaves much longer than the stalks: the flowers two or three, small: the petals have a broad yellow line with purple stripes; the three falls are of a light purple colour striped with blue, and have a convex ridge running along them: the others are of a reddish purple variegated with violet; they have a scent like fresh plums. It is a native of Austria, flowering in June.

The twenty-first has a knobbed root, blackish on the outside, whitish within, with long pale fibres: the stem round, very slightly compressed, straight or a little flexuose, from two to three feet in height, taller than the leaves: the flowers commonly two, on short peduncles, each involved in its spathe; sometimes there are three; they have no scent: the colour blue-purple; but under the stigmas the reflex petals are more inclined to red: upright petals flat, and usually quite entire. According to Miller, the flowers have light blue standards, and purple variegated falls, having a broad white line in the middle instead of the beard. It is a native of Germany, &c. flowering in July.

The twenty-second species has a higher stem, the scape a foot high or more, dividing at top, three-flowered or many-flowered, longer than the leaves; which are nerved and flat: the flowers blue, in brown scariose spathes: the inner petals are upright: the germ trigonal, not grooved at the angles. It is a native of Siberia, &c. flowering in May and June.

The twenty-third has a solid sub-bulbose root, surrounded by whitish fibres, and throwing out other tubers: the stem upright, roundish, two feet high, simple: the root-leaves acuminate, quite entire, somewhat rigid, distich, flat, keeled at the base, above simple, from upright spreading, few: the flowers few, coming out successively from the same spathe, yellow, without scent, peduncled: the petals have a black shining glandular hole or pit, like that which is common to several species of Ranunculus. It is a native of Martinico; flowering in November and December.

The twenty-fourth species has the scape round, jointed, villose, simple, a foot high, sustaining one or two flowers: the leaf somewhat channelled, striated, villose, the length of the scape: the spathes acute, striated, smooth, two inches long: the peduncles subancipital, one-flowered, smooth: all the petals united at the base: the three outer several times bigger than the others, ovate, obtuse entire; the three inner much narrower and shorter by half, lanceolate, acute. This beautiful flower is orange-coloured, with black spots and dots at the base, and a heart-shaped blue spot above the base, which at bottom is tomentose and black. It is a native of the Cape.

The twenty-fifth has a tuberous root; there arise from it five or six long narrow four-cornered leaves, and from between these the stalk, supporting one small flower, of a dark purple colour. It flowers in April, but does not produce seeds in this climate. It is a native of the Levant.

Culture.—Most of the sorts may be readily increased, by parting the roots or separating the off-sets from the bulbs, and planting them out in the situations where they are to flower: the first sort in the autumn, or very early in the spring, and the latter in the close of summer, when the leaves decay, managing them in the same manner as other bulbs. As they increase and spread rapidly in their roots, they should be divided and taken off every two or three years.

New varieties of the different sorts may be raised from seed, by sowing it in the autumn in a bed of light sandy mould. The plants come up in the following spring, and in the autumn may be transplanted where they are to grow. They flower a year or two afterwards.

The bulbous-rooted sorts succeed best in such soils as are of the light, sandy, loamy kind.

The last sort answers most perfectly in such aspects as are towards the east, the roots being prevented from going too deep.

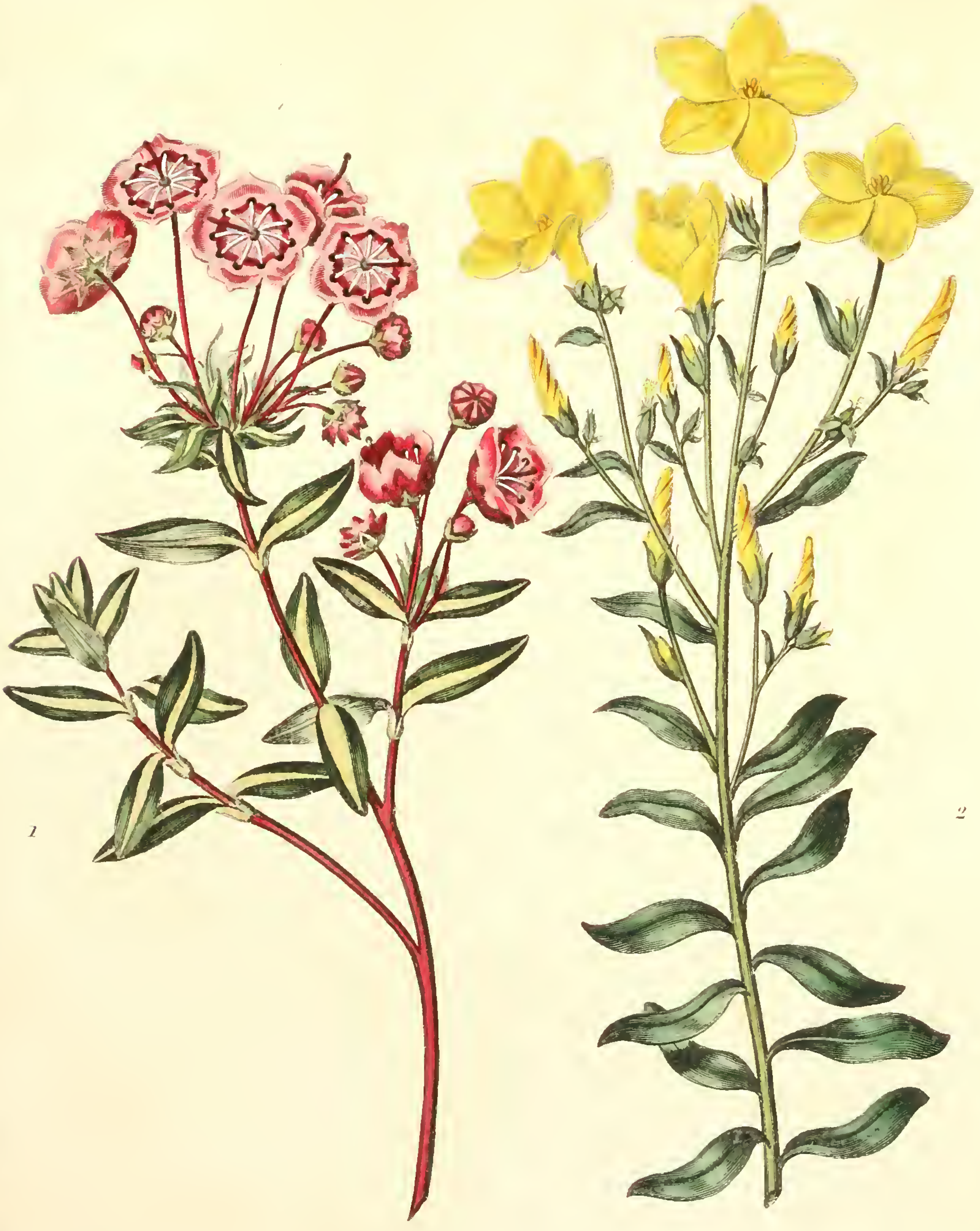
As the second sort is liable to be injured by severe winters, a few should be planted in pots to have protection. This sort is well suited for forcing.

When planted in the open ground, it requires a rather dry soil and situation.

The Cape sorts should be retained in the dry stove, and be propagated and managed in the same manner as other bulbous-rooted plants of the same kind.

All the sorts are proper for affording variety in the borders, clumps, and other parts of pleasure-grounds; and some of the more tender sorts among potted plants of similar growths.

Pl. 32.



Painted by Syd Edwards London Publiſhed Jan 1 1800 by G.Kearsley Fleet Street Engraved by F.Sanſom

1 *Kalmia glauca*
Glaucous Kalmia

2 *Linum arboreum*
Tree Flax

PLATE XXXI.

1. KALMIA GLAUCA.

GLAUCOUS KALMIA.

This genus contains plants of the hardy evergreen shrubby kind.

It belongs to the class and order *Decandria Monogynia*, and ranks in the natural order of *Bicornes*.

The characters are: that the calyx is a five-parted perianthium, small, permanent: segments subovate, acute, rather columnar: the corolla one-petalled, salver-funnel-form: tube cylindric, longer than the calyx: border with a flat disk; the margin upright, half-five-cleft: ten nectariferous hornlets projecting outwardly from the corolla, and surrounding it where the border of it is upright: the stamina have ten awl-shaped filaments, upright-spreading, rather shorter than the corolla, inserted into the base of the corolla: anthers simple: the pistillum is a roundish germ: style-thread-form, longer than the corolla: bent down: stigma obtuse: the pericarpium a capsule, subglobose, depressed, five-celled, five-valved, five-partite: the seed numerous.

The species cultivated are: 1. *K. latifolia*, Broad-leaved Kalmia; 2. *K. angustifolia*, Narrow-leaved Kalmia; 3. *K. glauca*, Glaucous Kalmia; 4. *K. hirsuta*, Hairy Kalmia.

The first rises with a branching stalk to the height of ten or twelve feet, with very stiff leaves, which are two inches long and one broad, of a lucid green on their upper side, but of a pale green on their under: they have short foot-stalks, and stand without order round the branches: between these the buds are formed for the next year's flowers, at the extremity of the branches; these buds swell during the autumn and spring months, till the beginning of June, when the flowers burst out from their empalements, forming a round bunch, or corymbus, sitting very close to the branch: they are of a pale blush colour, the outside of the petal a peach colour. In its native soil it continues flowering a great part of the summer, and is highly ornamental. It is a native of Carolina.

The noxious qualities of this elegant shrub lessen its value.

The second species rises from three to six feet high, dividing into small woody branches, which are very close, and covered with a dark-gray bark: the leaves are stiff, about two inches long, and half an inch broad, of a lucid green, placed without order upon the branches, on slender foot-stalks: the flowers are in loose bunches on the side of the branches, upon slender peduncles: they are bright red when they first open, but afterwards fade to a blush or peach-bloom colour.

There are varieties, with pale and deep-red flowers, differing in their habit: the latter, the most humble of the two, not only produces the most brilliant flowers, but in greater abundance. It is reputed poisonous to sheep and cattle in North America, where it is a native.

The third is much inferior in size to the first, rarely exceeding two feet in height. It is a native of Newfoundland, flowering in April and May.

The fourth species is usually in height from two to three feet, growing upright: the flowers are about the same size with those of the preceding, are of a purple colour, and grow in racemes: the stalk, leaves, and calyx are covered with strong hairs. It is a native of Carolina.

Culture.—These plants are increased by seeds, layers, and suckers.

The first sort is mostly raised from seeds procured from America, which should be sown in pots or boxes of light sandy mould, in the spring, plunging them in an easterly border, or in beds of light mould in the same aspect. When placed on a gentle hot-bed they succeed better. They must, however, be inured to the full air in summer, being sheltered during the winter from frost. When the plants have had two years' growth, they may be removed into separate pots, to be continued two or more years, when they may be planted out in the open ground in warm situations.

The second sort is mostly increased by layers, which should be made from the young shoots, and laid down in the early autumn. When they are well rooted, in a year or two, they may be taken off, and planted in pots separately filled with bog earth, or in a warm border of the same sort of earth. This is more hardy than the former.

The third sort is increased in the same way as the first, and requires similar management.

The fourth is preserved with difficulty in this climate, but may be raised by layers.

The most of the plants may likewise be increased by suckers, which should be taken off and planted in the spring, in nursery rows, for two or three years, when they may be removed to the places where they are to grow.

These plants, in the more hardy sorts, afford ornament and variety in the fronts of shrubbery borders and clumps; and in the more tender sorts, among other potted green-house plants.

2. LINUM ARBOREUM.

TREE FLAX.

This genus contains plants of the herbaceous, annual, and perennial shrubby kinds.

It belongs to the class and order *Pentandria Pentagynia*, and ranks in the natural order of *Gruinales*.

The characters are: that the calyx is a five-leaved lanceolate perianthium, upright, small, permanent: the corolla funnel-form: petals five, oblong, gradually wider above, obtuse, more spreading, large: the stamina have five awl-shaped filaments, upright, length of the calyx (also five rudiments, alternating): anthers simple, arrowed: the pistillum is an ovate germ: styles five, filiform, upright, length of the stamens: stigmas simple, reflex: the pericarpium a globose capsule, rudely pentagonal, ten-valved, gaping at the tip: partitions membranaceous, very thin, connecting the valves: the seeds solitary ovate-flattish, acuminated, smooth.

The species are: 1. *L. usitatissimum*, Common Flax; 2. *L. perenne*, Perennial Flax; 3. *L. suffruticosum*, Shrubby Flax; 4. *L. arboreum*, Tree Flax; 5. *L. Africanum*, African Flax.

The first has an annual, simple, fibrous, pale brown root: the stem upright, eighteen inches, two feet, and even more in height, round, smooth, leafy, branched only at top: the leaves are sessile, growing close together, almost upright, perfectly entire: the flowers large, growing in a panicle, on round smooth peduncles: the calycine leaflets ovate-keeled, with a membranous edge, when magnified appearing to be fringed with hairs: the petals wedge-shaped, deciduous, sky-blue, streaked with deeper-coloured lines; white at the claws, and somewhat gnawed at the tip. It is a native of Egypt, flowering in June and July.

It may be said to be one of the most valuable plants in the whole vegetable kingdom; as from the bark of its stalks is manufactured flax or lint, for making all sorts of linen cloth; from the cloth, when worn to rags, is made paper: and from the seeds of the plant linseed oil is expressed, which is much used by painters, and in other arts; and the refuse, after expression, forms the oil-cakes so valuable in the fattening of cattle and sheep.

In the second species, from its perennial root rise three or four inclining stalks, having short narrow leaves towards their base, but scarcely any about the top: the flowers are produced at the ends of the stalks, sitting very close; they are blue, and about the size of the cultivated sort, being succeeded by pretty large round seed vessels, ending in acute points. Its flowers appear from June to August, and are of a delicate texture and very elegant blue colour, and the roots continue four or five years.

There is a variety which is procumbent, with smaller flowers.

The third has a shrubby stalk a foot high, sending out several branches: the leaves very narrow, coming out in clusters, but on the flowering branches broader and longer: the flowers at the ends of the branches, erect, on long slender peduncles: the calyxes acute-pointed: the petals large, entire, white, but before the flowers open pale yellow: they appear in July, but the seeds seldom ripen in this climate: the flowering stalks decay in the autumn, but the lower shrubby part continues with the other branches all the year. It is a native of Spain, &c.

The fourth species forms, if not a tree, as its name implies, a shrub of the height of several feet: it begins to flower in March, and continues flowering to the close of summer; but has not yet produced seeds in this climate. It is a native of the island of Candia.

The fifth has a suffruticose stiff stem, a foot high, round, with simple branches: the leaves are sessile, upright, even, generally shorter than the internodes: the flowers in a terminating umbel, which is four or five cleft, with dichotomous rays: the petals are yellow with villose claws, and turning tawny: the calyx acuminate and rugged at the edge. It is a native of Africa, flowering in June and July.

Culture.—These plants may be increased by seeds and layers, or cuttings.

The two first sorts are raised by sowing the seeds in the early spring months, as March or the following month, the former in fields or plantation-grounds, where the soil is fresh, good, and well reduced into order by frequent digging over, or ploughing and harrowing, in narrow drills, or broadcast, and raked or harrowed in with a light harrow; the plants being afterwards kept perfectly clean from weeds by repeated hoeings.

Towards the end of August, when the plants have attained their full growth, and begin to turn yellow at bottom, and brown at top, and their seeds to ripen, it is proper time to pull them; though, if it were not for the sake of the seed, they might be pulled a little before the seeds ripen, by which the flax is generally better coloured and finer; but if suffered to stand till the seeds are fully ripe, it is commonly stronger, somewhat coarser, and more in quantity. It should be pulled up by handfuls, roots and all, shaking off all the mould; then either spreading them on the ground by handfuls, or binding them in small bunches, and setting them upright against one another, for ten days or a fortnight, till they are perfectly dry, and the seed fully hardened, then housed, and the seed thrashed out, cleaned, and placed in a dry airy situation, being afterwards put up for use. The flax, after being rippled and sorted, should be carried to a pond of nearly stagnant water, being placed in it with the bundles crossing each other in different directions, so as to keep the whole in a close compact state, being kept just below the surface of the water, by proper weights applied upon it. It should remain in this steep till the stems become brittle and the bark readily separates, when it must be taken out and spread thinly on a short pasture, being occasionally turned until it becomes perfectly bleached and dry, when it is in a proper state for the purpose of being converted into flax.

The latter, or perennial sort, should be sown in a bed or border of good earth, in shallow drills at the distance of six inches; and when the plants are two or three inches in height they should be thinned to the same distances, and in autumn be planted out in the places where they are to grow. But it is probably a better practice to sow them at once in the places where they are to grow, thinning them out properly afterwards.

The three other sorts may be best increased by planting cuttings of the branches in pots of light fresh earth, plunging them in the tan hot-bed, or by layers laid down in the later summer months. When the plants in either mode have stricken good root, they may be removed into separate pots, and be managed as other tender exotic plants that require the protection of the greenhouse.

They may likewise be raised from seeds when they can be procured, which should be sown in pots and placed in a hot-bed in the spring season.

A few plants of the two first sorts may be introduced in the clumps and borders of the pleasure-ground; and the three other sorts afford variety in green-house collections among other potted plants.

PLATE XXXII.

1. HELIANTHUS MULTIFLORUS.

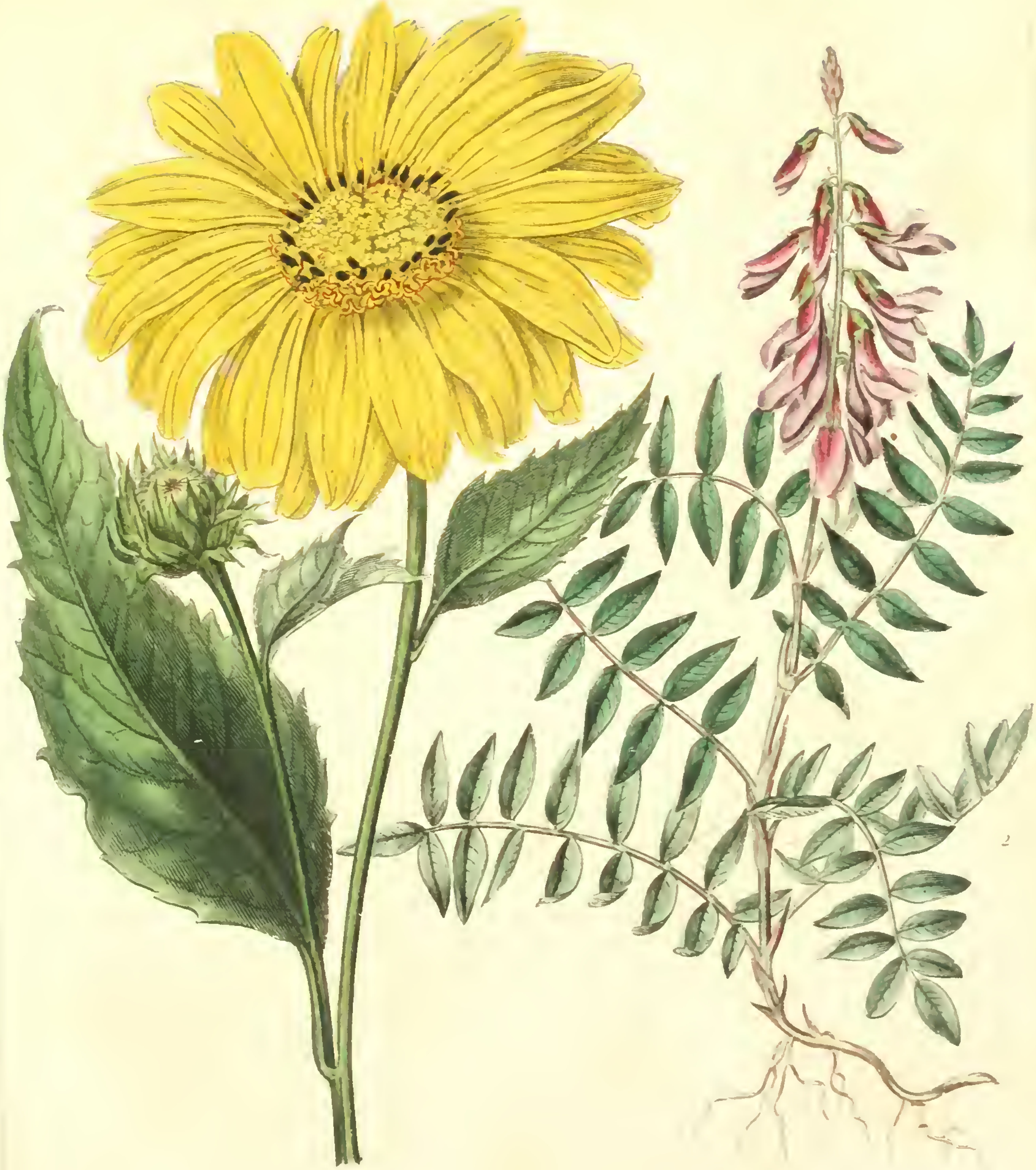
PERENNIAL SUN-FLOWER.

This genus contains plants of the hardy herbaceous flowery kinds.

It belongs to the class and order *Syngenesia Polygamia Frustranea*, and ranks in the natural order of *Compositæ Oppositifoliæ*.

The characters are: that the calyx is common imbricate, somewhat squarrose, expanded; scales oblong, broadish at the base, gaping every where at the tips: the corolla compound radiate: corollets hermaphrodite, very numerous in the disk: females fewer, much longer in the ray: proper of the hermaphrodites cylindric, shorter than the common calyx, bellying at the base, orbicular, depressed: border five-toothed, sharp, spreading: of the females ligular, lanceolate, quite entire, very long: the stamina in the hermaphrodites consist of five filaments, curved, inserted below the belly of the corollet, the length of the tube: anther cylindric, tubular: the pistillum in the hermaphrodites is an oblong germ: style filiform, length of the corollet: stigma two-parted, reflex: in the females, germ very small: style and stigma none: there is no pericarpium: unchanged calyx: seeds in the hermaphrodites solitary, oblong, blunt, four-cornered, compressed at the opposite angles; the inner ones narrower, crowned with two lanceolate, acute deciduous chaffs; in the females none: the receptacle chaffy, large, flat: chaffs lanceolate, acute, two separating each seed, deciduous.

The species cultivated are: 1. *H. annuus*, Annual Sun-flower; 2. *H. indicus*, Dwarf Annual Sun-flower; 3. *H. multiflorus*, Perennial Sun-flower; 4. *H. tuberosus*, Tuberous-rooted Sun-flower, or Jerusalem Artichoke.



Drawn by Thos. Edwards

London, Publish'd by [illegible] Kearsley Fleet Street

Helianthus multiflorus
1 *Perennial Sun flower*

Hedysarum [illegible]
2 *Creeping rooted Hedysarum*

There are several other species of the perennial sort that may be cultivated.

The first has an annual root: the stem single or branched, from five or six to ten or fourteen feet in height, and in hot climates twenty or more; when vigorous, the size of a man's arm: the leaves are alternate, a span or a span and a half in length, and almost as much in breadth, rough, serrate, acuminate, hanging down at the end, on long petioles: the flower single (sometimes several), nodding, a foot or more in diameter. It is a native of Mexico, flowering from June to October. Martyn observes, that as to its turning with the sun, it is a vulgar error; Gerarde could never observe it; and he has seen four flowers on the same stem pointing to the four cardinal points.

There are varieties with double flowers, deep yellow, and sulphur-coloured.

The second species is perhaps only a variety of the first, though constant; but the leaves are convex above in the disk, and of a darker green. The peduncles are less thickened at top, or rather of an equal thickness every where, whence the flowers nod less. The scales of the calyx, except the inmost row, grow out into petioled pendulous leaflets. It grows only from eighteen inches to three feet in height. It probably comes from Mexico or Peru.

The third has the stem and peduncles scabrous: the leaves cordate-ovate: the calyxes loosely imbricate, neither squarrose nor drooping, consisting of forty to fifty scales: the stems many, upright, from five or six feet to eight or nine in height, branching, the stem and each branch terminated by a flower, the principal one sometimes nine or ten inches in diameter, the lateral ones gradually smaller: the leaves some opposite, others alternate. There is a constant succession of flowers from July to November. It is a native of Virginia.

In the fourth species the stems are several, rough, hairy, streaked, from eight, ten, or twelve to sixteen feet in height, the size of a child's arm: the leaves alternate, light green, rough, pointed, eight inches broad, and ten or eleven inches long, deeply serrate, smaller towards the top: the branches many, long, from bottom to top: the flowers terminating, small; florets in the ray twelve or thirteen. These seldom blow before October, and in some seasons they do not expand at all. The seeds never ripen here: the roots creeping, with many tubers clustered together, thirty, forty, or fifty from one plant, measuring a peck, or in good soils half a bushel; they are, like the common potatoe, red on the outside, and very irregular in their shape, the size of a man's fist in the largest. It is a native of Brazil.

Culture.—All these flowery plants are easily increased, the two first sorts by seeds, and the others by dividing their roots.

The seeds should be sown in the early spring months, in the places where the plants are to grow and flower, in patches of three or four seeds together. When the plants are up they may be thinned out to one or two of the best.

They may be had more forward by sowing them on a moderate hot-bed, under glasses, and afterwards transplanting them to the situations where they are to grow.

The divided roots may be planted out in the places where they are to remain, either in the autumn or the early spring months.

These plants produce a fine ornamental effect in the back parts of the borders, clumps, and other parts of pleasure-grounds, and by sowing at different times may be kept in flower for a considerable length of time.

In the perennial sorts the decayed stems should be cleared away when they begin to decline. They continue long.

The last, or tuberous-rooted sort, is increased by planting the smaller roots, or the larger ones cut in pieces, a bud being preserved to each, either in the spring or autumn, allowing a good distance, as the roots multiply greatly. In the autumn following, when the stems decay, the roots may be taken up for use.

When cultivated for a crop, the sets should be planted in an open part of the kitchen-garden, in rows three feet or more asunder, and at least eighteen inches distant from each other, to the depth of four or five inches. The best time is the later end of March, in a light soil. The roots may be taken up for use in September, and the whole crop housed in October. When kept in sand in a dry place, they continue the whole winter very good.

2. HEDYSARUM OBSCURUM.

CREEPING-ROOTED HEDYSARUM.

This genus contains plants of the herbaceous flowering kind.

It belongs to the class and order *Diadelphia Decandria*, and ranks in the natural order of *Papilionaceæ*.

The characters are: that the calyx is a one-leafed perianthium, half-five-cleft: clefts subulate, upright, permanent: the corolla is papilionaceous, streaked: banner reflex-compressed, ovate-oblong, emarginate, long: wings oblong, narrower than the other petals, straight: keel straight, compressed, broader outwardly, transversely blunt, from the base to the swelling part bifid: the stamina have diadelphous filaments, (simple and nine-cleft,) bent in at a right angle: anthers roundish, compressed: the pistillum is a slender germ, compressed, linear: style subulate, bent in with the stamens: stigma very simple: the pericarpium is a legume with roundish, compressed joints, two-valved, and containing one seed: the seed kidney-shaped and solitary.

The species chiefly cultivated are: 1. *H. Alhagi*, Prickly Hedysarum; 2. *H. Canadense*, Canadian Hedysarum; 3. *H. gyrans*, Sensitive Hedysarum; 4. *H. coronarium*, Common Hedysarum, or French Honeysuckle; 5. *H. flexuosum*, Waved-podded Hedysarum; 6. *H. humile*, Dwarf Hedysarum; 7. *H. spinosissimum*, Prickly Hedysarum.

The first has the stems shrubby, about three feet high, branching out on every sid : the leaves are shaped like those of broad-leaved

Knot-grass, very smooth, of a pale green colour, on short foot-stalks. Under these come out thorns, near an inch long, of a reddish brown colour. The flowers come out from the side of the branches in small clusters, are of a purple colour in the middle, and reddish about the rims. It is a native of the Levant.

The second species is an upright plant, and mostly smooth: the stem streaked and angular: the leaflets are lanceolate: the stipules awl-shaped. It is perennial, and a native of Virginia, &c. flowering in July and August.

The third has a branching perennial root (biennial, annual): the stem shrubby, three feet high, wand-like, upright, very smooth, round, without knots: the leaves are alternate, petioled, hanging down or spreading, often vertical, sometimes simple, but usually ternate, especially in adult plants: the middle leaflet lanceolate, long, flat, quite entire, very smooth, veined; the side ones very small, and seeming rather to be appendicles than leaflets; they are on short petioles, which are remarkable for a motion peculiar to them. The flowers many and nodding. It is a native of Bengal.

The fourth species has a biennial root: the stems from two to three feet high, hollow, smooth, and branching: the leaves are composed of five or six pairs of oval leaflets, terminated by an odd one: they are alternate, and from the angles which they form with the stem and branches, peduncles come out five or six inches in length, sustaining spikes of beautiful red flowers, which open in June and July, and perfect seeds in September. It is a native of Spain, &c.

There is a variety with white flowers.

The fifth species is annual, and has some resemblance to the foregoing, but is much smaller: the stalks rise near a foot high, and the leaves are composed of two or three pairs of ovate leaflets, terminated by an odd one: the flowers come out in spikes at the top of the stalks, and are of a pale red, intermixed with a little blue. They appear in July, and are succeeded by jointed pods. It is a native of the Levant.

The sixth has a perennial root: the stems half a foot in length, usually with one branch and leaf only: the leaflets obovate-oblong, villose underneath: the spike ovate. It is a native of the South of France, &c. flowering in July and August.

The seventh is an annual plant: the leaflets four or five pairs, with an odd one, narrow and oblong: the stem terminated by small spikes of purple flowers, which are succeeded by small rough legumes. It is a native of Spain, &c.

Culture.—All these plants are capable of being raised by sowing the seeds in the early spring.

In the first sort they should be sown in pots of light earth, and plunged in a moderate hot-bed. When the plants are of some growth they should be removed into separate pots, and be replunged into a very moderate hot-bed, being properly shaded till they are well rooted. They should afterwards be gradually inured to the open air, being protected in winter as there may be occasion.

The seeds are often long in coming up.

In the second sort the seed may be sown in the early spring, as April, on a bed of light fresh earth, or where they are to remain. In the first case they should be removed where they are to grow in the autumn. These plants should not be often removed afterwards.

The third sort is raised in the same manner as the first, and should have free air in the summer, and be protected occasionally in the winter.

The other sorts are all increased in the same manner as the second, being pricked out while young, and in the autumn removed to the places where they are to grow and flower.

As the biennial sorts either decay or dwindle after flowering, they should be raised in fresh supplies every year from seed.

These plants are very ornamental in the beds, borders, clumps, and other parts of pleasure-grounds, and some of them among other potted plants.

PLATE XXXIII.

1. LAVATERA TRIMESTRIS.

ANNUAL LAVATERA.

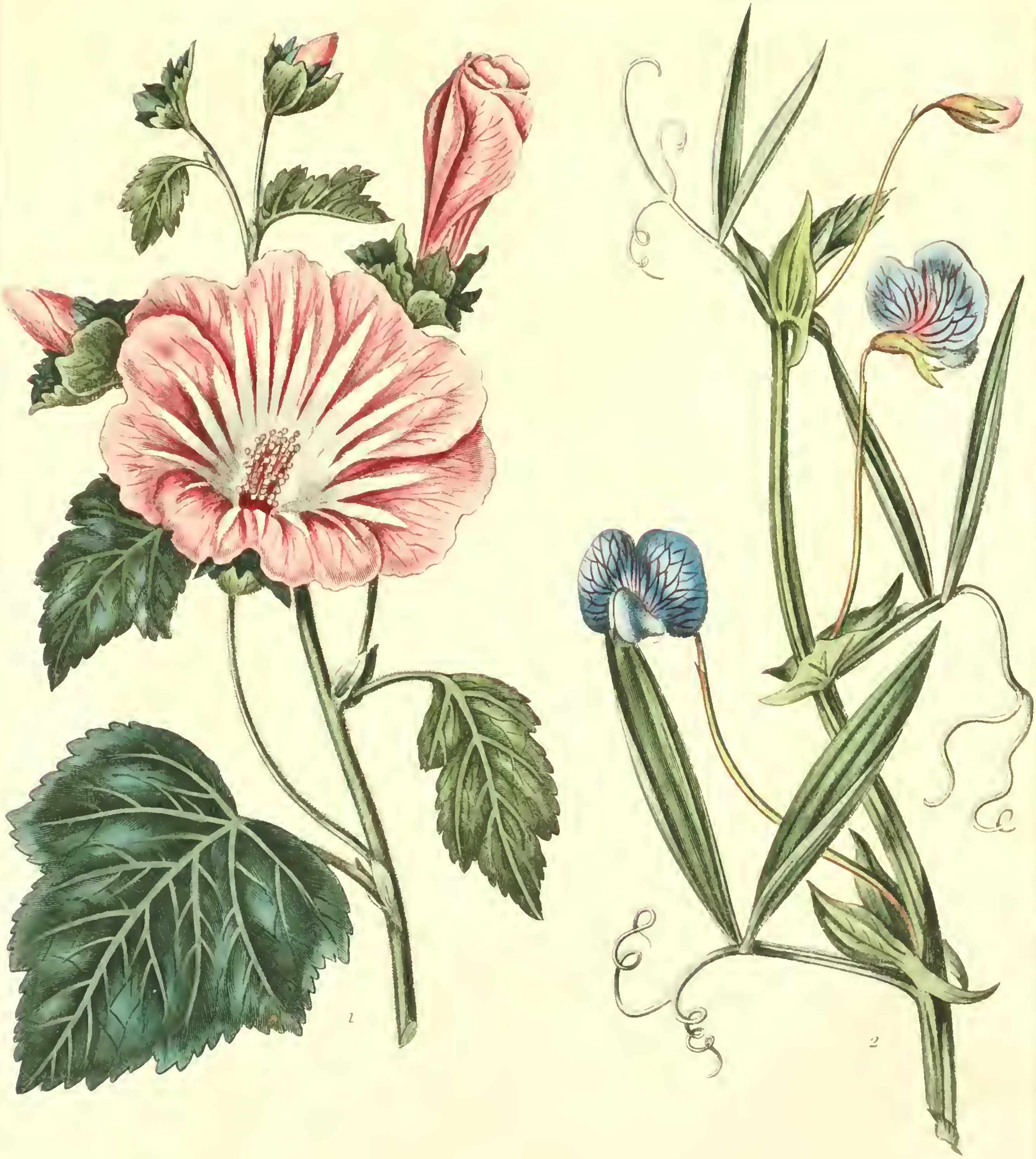
This genus contains plants of the herbaceous shrubby perennial kinds.

It belongs to the class and order *Monadelphia Polyandria*, and ranks in the natural order of *Columniferæ*.

The characters are: that the calyx is a double perianthium: exterior one-leafed, trifid, obtuse, short, permanent: interior one-leafed, half five-cleft, more acute, more erect, permanent: the corolla has five obcordate flat petals, spreading, affixed below to the tube of the stamens: the stamina have numerous filaments, coalescing below into a tube; loose above (gaping at the tip and surface of the tube): anthers reniform: the pistillum is an orbicular germ: style cylindric, short: stigmas several (seven to fourteen), bristly, length of the style: the pericarpium is an orbicular capsule, composed of as many cells as there are stigmas, bivalve, and articulated in a whorl round the columnar receptacle, at length falling off: the seeds solitary and reniform.

The species cultivated are: 1. *L. Cretica*, Cretan Lavatera; 2. *L. trimestris*, Common Annual Lavatera; 3. *L. Thuringiaca*, Great-flowered Lavatera; 4. *L. arborea*, Tree Lavatera, or Mallow; 5. *L. Olbia*, Downy-leaved Lavatera; 6. *L. triloba*, Three-lobed Lavatera; 7. *L. Lusitanica*, Portuguese Lavatera.

The first has an annual fibrous root of thick fibres, a foot in length, with innumerable other capillary fibres: the stem round, rugged, five feet high, branched: the leaves on long petioles, very soft, tomentose, toothed, seven-angled, the angles of the upper ones



Painted by Syd Edwards
London Publish'd 1 Sep 1 [illegible] by G Kearsley Fleet Street
Engraved by F. Sansom

1 Lavatera Trimestris
Annual Lavatera

2 Lathyrus Sativus
Blue flowered Lathyrus

sharper: the stipules lanceolate, ciliate, bowing at bottom and then erect: the flowers axillary, about four together, on upright peduncles: the outer calyx cup-shaped, with ovate segments: inner a little longer, five-cornered above, with lanceolate segments: the corolla twice the length of the calyx, pale blue, with oblong, emarginate petals: the germ orbicular-flatted, ten-grooved: the stigmas ten: the fruit smooth, within the calyx: the capsules ten, round a column terminated by a hemisphere with a very small point at top, disappearing when the fruit is ripe, and leaving a hole in the middle of the capsules, which then turn black. It is a native of the island of Candia or Crete, flowering in July.

It varies with red flowers, with white flowers, and with purple flowers.

The second has also an annual root, white, with spreading beards: the stem round, two feet high, branched, the lower branches almost horizontal: the leaves crenate-toothed, smooth, on long petioles, gradually narrowed towards the tip: stipules ovate-lanceolate, ciliate, bowed at bottom and then straight: the flowers solitary, axillary, on peduncles shorter than the petiole: outer calyx semi-trifid, with keeled segments; inner larger, with lanceolate segments, curled at the edge: the corolla large, spreading, bell-shaped, pale-flesh-colour, with whitish lines: petals broader above, crenate, frequently rolled up, the edges of the claws deep purple: the germ very smooth: the style multifid: the stigmas pale-flesh-coloured, longer than the tube, thirteen to eighteen: the fruit hemispherical, convex beneath, covered at top with a circular concave, smooth lid or peltate umbrella: there are about twenty capsules in a whorl; they are brown, closed all round and not opening, with a longitudinal raised line along the back, elegantly marked on the sides with flexuose streaks drawn from the circumference to the centre: the seeds are ferruginous. It is a native of the south of Europe, &c. flowering from July to September.

There are several varieties.

The third has the stem five or six feet high, woolly, branched: the lower leaves heart-shaped, crenate, roundish-lobed: upper hastate, on short petioles: the stipules lanceolate: the flowers axillary, solitary, peduncled; peduncles longer than the leaf: the calyxes subtomentose: the segments of the outer heart-shaped, with a very sharp point; of the inner oblong acute: the corolla large, spreading, pale violet or purplish, shaped like those of the Marsh-mallow, but larger: petals emarginate: the capsules about twenty (fourteen) in a wing of a papery substance, somewhat sugged, about a columnar receptacle, which has many wings from the permanent sides of the capsules, like the cogs of a mill-wheel, ending in a conical awl-shaped point: the seeds flatted a little, smooth, subcinereous or brown. It is a native of Sweden, flowering from July to September.

The fourth species rises with a strong thick stalk the height of eight or ten feet (in gardens), dividing into many branches at the top: in its wild state, when largest, from four to six feet high, and as much as four inches in diameter: the leaves are alternate, numerous, cordate, roundish-seven-angled (some five, and others three-angled), the angles blunt, soft as velvet, shorter than the petioles: the stipules short, smooth, acuminate at the tip, broad at the base: the flowers mostly in pairs, sometimes three together, on upright peduncles an inch and a half in length: the outer calyx ovate at the base, divided half way into three broad blunt segments; inner only half the size, divided half way into five sharp segments: the corolla purplish red, with dark blotches at the base, spreading bell-shaped (like that of the common Mallow), an inch or more in diameter: the petals broader at top, narrow at the base, so that the calyx appears between the claws: the cylinder of filaments purple, woolly at the base: the germ very smooth: the style usually eight cleft at top: the stigmas revolute, reddish: the ring or whorl of fruits is seven or eight capsuled: the common receptacle awl-shaped, with a conoid globule at top, and small crescent shaped lamellæ at the base and the interstices of the capsules: the capsules are reniformed-rounded, sharply three-cornered, membranaceous, wrinkled, closed on all sides, pale bay-coloured, not opening: the seeds kidney-shaped, and ash-coloured. It is a native of Italy, &c. flowering from June or July to September or October.

The fifth has a round branched stem, five feet high, villose at top, reddish: the leaves soft, whitish, tomentose, unequally serrate; the lower subcordate-hastate, five-angled; the upper ovate, three-cusped, the middle lobe narrowed, acute, oblong: the stipules ovate-lanceolate, villose: the flowers on short peduncles, axillary, solitary, very seldom two together; terminating ones in a spike: the outer calyx ovate, with roundish-acute segments; inner larger, with lanceolate-acute segments: the corolla large, spreading very much, reddish-purple: the petals with narrowed claws, covered with white hairs, inserted into a flesh-coloured tube: the stamens purple: the germ roundish-compressed, with twenty grooves: the style divided into about twenty parts: the stigmas long, recurved: the capsules about twenty, black, smooth, fixed in a ring about a thick striated cone: when the seeds are ripe, that part which is next to the axis appears naked, on account of the pellicle which forms the internal part of the capsule adhering to the axis. According to Linnæus, the leaves of the first year are very large, and those of the following much smaller, which is a circumstance common to this with other plants of the same natural order. It is a native of the south of France, flowering from June to October.

The sixth species has a round branched stem, from three to four feet in height: the leaves are alternate, petioled, shorter than the petioles, roundish, but with the border so rolled back as to appear triangular: the stipules cordate, broad, acuminate, serrate: the flowers axillary: three peduncles, mostly one-flowered, in each axil, upright, shorter than the petiole: the segments of the outer calyx broad-cordate, acuminate: the inner calyx twice as large, five-cornered, acuminate, with the corners prominent: corolla large, spreading, pale purple, with the claws white, hairy: the capsules about fifteen, in a ring about a column ending in a point. According to Linnæus, the whole plant is tomentose, being covered with very small glutinous hairs, with other larger ones stellate at top mixed among them. It is a native of France and Spain, flowering from June to September.

The seventh is a native of Portugal, flowering in August and September.

Culture.—The first two, or annual sorts, are readily increased, by sowing the seeds in a light soil in the places where the plants are to remain, or in pots, in the spring season, as about the latter end of March, in patches of four or five in each, giving them water occasionally when the weather is dry. When the plants have attained a little growth, they should be thinned out to one or two of the strongest plants. When any are to be removed to other places, it should be done at this period, and with a little earth about the roots, due water and shade being given; but they seldom succeed well by transplanting.

All the other shrubby perennial sorts may likewise be increased by sowing the seeds, and managing the plants in the same manner.

Most of these sorts will not last more than two years in this climate, unless the soil be dry, when they continue three or four.

They in general require a warm dry situation, or to have their roots covered by old tan, or the protection of the green-house during the severity of the winter season.

They are all highly ornamental in different parts of pleasure-grounds. The annual sorts have great beauty, in their flowers being large, numerous, and conspicuous, and are proper where large showy-flowering plants are required. The perennial kinds are also suitable for large borders and shrubbery compartments, having large, straight, upright, durable stems, terminated by branchy bushy heads, and very large soft foliage, that form a fine variety in assemblage with other plants, though their flowers are often hidden by their large leaves.

2. LATHYRUS SATIVUS.

BLUE-FLOWERED LATHYRUS.

This genus contains plants of the herbaceous climbing flowery kinds.

It belongs to the class and order *Diadelphia Decandria*, and ranks in the natural order of *Papilionaceæ* or *Leguminosæ*.

The characters are: that the calyx is a one-leafed perianthium, half five-cleft, bell-shaped: divisions lanceolate, sharp: the two upper ones shorter; the lowest longer: the corolla papilionaceous: standard obcordate, very large, reflex on the sides and tip: wings oblong, lunulate, short, obtuse: keel half-orbiculate, size of the wings, and wider than the wings, gaping inwards in the middle: the stamina have diadelphous filaments, (single and nine-cleft) rising upwards: anthers, roundish: the pistillum is a compressed germ, oblong, linear: style erected upwards, flat, wider above, with sharp tip: stigma, from the middle of the style to the tip villose in front: the pericarpium is a legume, very long, cylindric or compressed, acuminate, one-celled, bivalve: the seeds several, cylindric, globose, or but little cornered.

The species cultivated are: 1. *L. odoratus*, Sweet Lathyrus, or Pea; 2. *L. Tingitanus*, Tangier Lathyrus, or Pea; 3. *L. latifolius*, Broad-leaved Lathyrus, or Everlasting Pea.

Several other species may be cultivated where variety is wanted.

The first is an annual plant, which rises from three to four feet high by means of its long claspers or tendrils: the flower-stalks come out at the joints, are about six inches long, and sustain two large flowers, which have a strong odour, and are succeeded by oblong hairy pods, having four five or roundish seeds in each. It is a native of Sicily.

There are several varieties; as the purple-flowered, the white-flowered, the variegated or painted lady, sweet-scented, and the scarlet.

The second species has the stem four or five feet high: the leaflets veined: the peduncles short, sustaining two large flowers with purple standards, the wings and keel bright red: the legumes long, jointed, containing several seeds.

Martyn observes, that the whole plant is very smooth: the stem branched, running out on each side into a slender sharp wing: the petioles angular, ending in bifid, trifid, or simple tendrils: the stipules lanceolate, acuminate, produced downwards into an earlet, similar but much smaller: the peduncles sometimes one-flowered. It is a native of Barbary, flowering in June and July; and although it has not the agreeable scent, or variety of colours, or continuance in blow of the Sweet Pea, it is usually sown in gardens with other annual seeds.

The third has a perennial root: the stalks several, thick, climbing by means of tendrils to the height of six or eight feet, or even higher in woods: these die to the ground in autumn, and new ones rise in the spring from the same root: the leaves stiff, marked with three or five strong ribs, rolled in at the edge, blunt at the end, but terminating in a little point or bristle; they are always in pairs, and on a winged petiole; at the base of this are large stipules, shaped somewhat like the head of a halbert: the tendrils multifid or branched: the peduncles eight or nine inches long. Each flower has an awl-shaped bracte at the base of the pedicel: the corolla pale purplish rose-colour: the legumes an inch and half long, and half an inch in breadth. It is a native of many parts of Europe, flowering at the end of June and beginning of July.

It is a showy plant for shrubberies, wilderness quarters, arbours, and trellis-work; but too large and rampant for borders of the common flower-garden.

There are many varieties; as the red-flowered, the purple-flowered, the scarlet-flowered, and the large-flowered.

Culture.—These plants may be readily raised, by sowing the seeds of the different sorts in the autumn or spring seasons at different times, in patches of six or eight together, in the places where they are to grow. Where the soil is light and dry, the autumn is the best season, as the plants appear more early, but in other cases the spring should be preferred. The plants afterwards only require to be kept clean from weeds, and be properly supported by branchy sticks.

The last sort may likewise be increased by transplanting the roots in the autumn; but the plants in this way are seldom so good as by seeds.

The two first sorts must be sown annually, but the last will remain many years.

It is the practice with the gardeners who raise the first sorts for the London markets, to sow them in the autumn, in pots, and secure them from severe weather, by placing them in hot-bed frames; by which means they can bring them much more early to market. They may be continued in flower the whole summer by repeated sowings in the spring. When sown in pots they should be watered frequently.

They are all highly ornamental in the borders, clumps, and other parts of pleasure-grounds, when properly intermixed in their species and different varieties.

PLATE XXXIV.

LYCHNIS CHALCEDONICA.

SCARLET LYCHNIS.

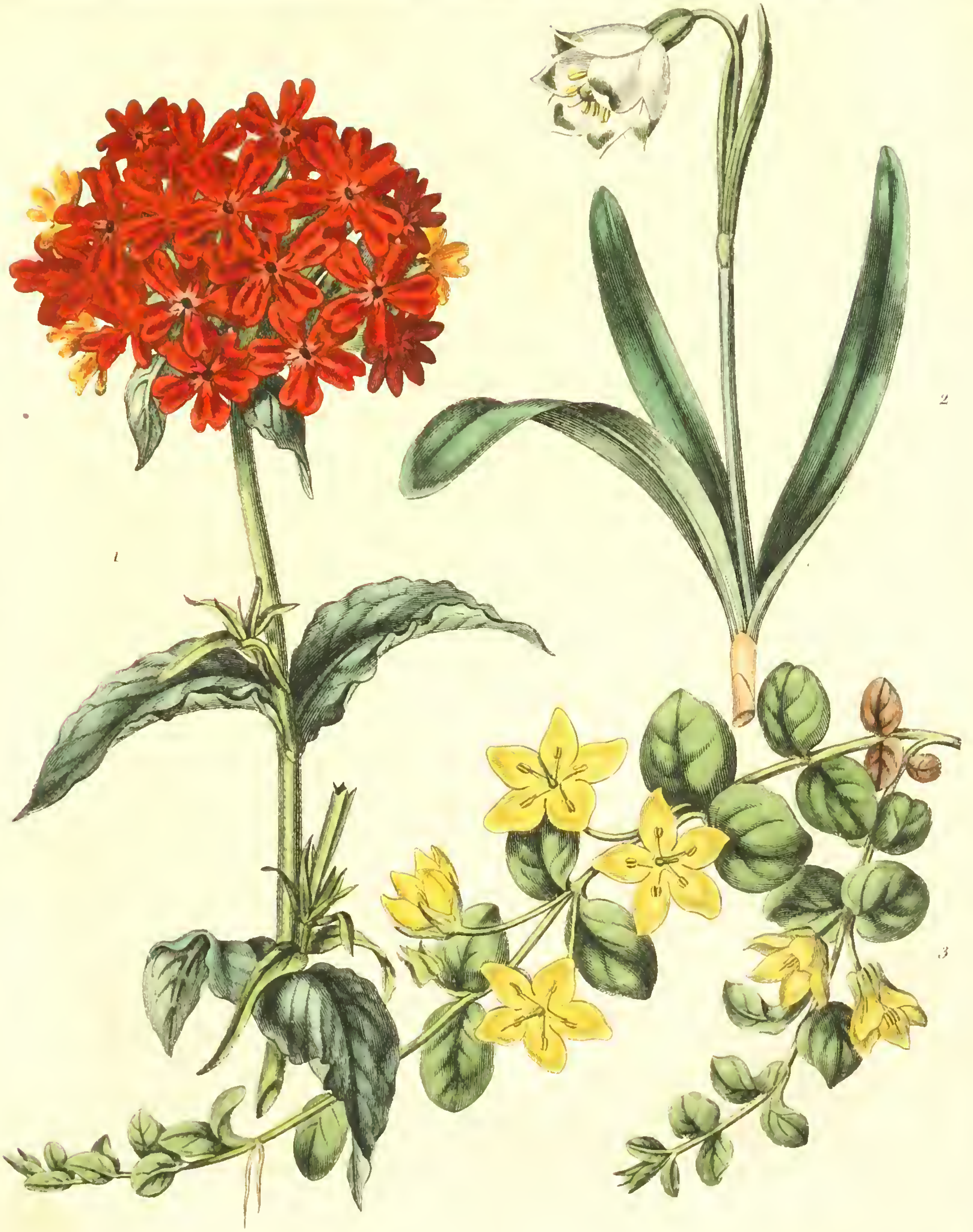
This genus contains plants of the hardy, herbaceous, flowery, perennial kind.

It belongs to the class and order *Decandria Pentagynia*, and ranks in the natural order of *Caryophyllei.*

The characters are: that the calyx is a one-leafed perianthium, oblong, membranaceous, five-toothed, permanent: the corolla has five petals: claws the length of the calyx, flat, margined: border often cloven, flat: the stamina have ten filaments, longer than the calyx, alternately shorter, each of these fixed to a claw of each petal: anthers incumbent: the pistillum is a subovate germ: styles five, awl-shaped, longer than the stamens: stigmas reflex against the sun, pubescent: the pericarpium is a capsule approaching to an ovate form, covered, one, three, or five celled, five-valved: the seeds very many, and roundish.

The species cultivated are: 1. *L. chalcedonica*, Scarlet Lychnis; 2. *L. Flos cuculi*, Red-flowered Lychnis, Meadow Pink, or Ragged Robin; 3. *L. coronata*, Chinese Lychnis; 4. *L. viscaria*, Viscous Lichnis, or Catchfly; 5. *L. diurna*, Rose-flowered Lychnis, Wild Red Campion, or Red Bachelor's Buttons; 6. *L. vespertina*, White-flowered Lychnis, Wild White Campion, or White Bachelor's Buttons.

The first has a perennial root: the stems three feet high, upright, stiff, round, jointed, hairy: at every joint are two large leaves of a brownish green colour: the flowers terminating in a large flat-topped tuft, consisting of several bundles: the corolla is of a scarlet or bright



Drawn by Syd Edwards London Published July 1st 1805 by G Kearsley Fleet Street Engraved by F. Sansom

Lychnis chalcedonica
1 Scarlet Lychnis

Leucojum vernum
2 Spring snow flake

Lysimachia Nummularia
3 Creeping Moneywort

red orange colour, varying to white, blush, and variable, that is, pale red, growing paler till it becomes almost white. It is a native of Russia, &c.

Besides its varying as above, there is a variety with very double flowers of a beautiful scarlet colour: it has a perennial root, from which arise two, three, or four stalks, according to the strength of the roots, which in rich moist land grow upwards of four feet high; the stalks are strong, erect, and hairy, being garnished the whole length with spear-shaped leaves sitting close to the stalks, placed opposite; and just above each pair of leaves there are four smaller leaves standing round the stalk: the flowers are produced in close clusters sitting upon the top of the stalk: when the roots are strong, the clusters of flowers are very large, and make a fine appearance, coming out the latter end of June, and in moderate seasons continue near a month in beauty. The stalks decay in autumn, and new ones arise in the following spring.

The second has also a perennial root, bronwish white, subacrid: the stems from one to three feet high, upright, somewhat angular and grooved, swelled at the joints, purplish: they are procumbent, and become upright at the time of flowering: the stem-leaves opposite, connate, lanceolate, keeled, upright, smooth: the peduncles opposite, with one generally between them: the calyx ten-angled, of a deep purple colour: the corolla pink or purplish red, varying sometimes to white: the border of the petals dividing into four segments, of which the two outer are shorter and narrower: the claws have two small spear-shaped teeth at the top: the capsule one-celled, the mouth having five teeth which turn back: the seeds flattish, rugged, of a brown ash-colour. It is a native of most parts of Europe, flowering in May and June.

In the third the whole plant is smooth: the stem simple, round, upright, a foot high: the leaves opposite, embracing, oblong-ovate, acute, entire, an inch or a little more in length: the flowers aggregate, about three, sessile: the calyx is ten-angled: the petals are gashed, crenate multifid: the filaments the length of the tube of the corolla, filiform: the germ superior: styles five, much shorter than the tube of the corolla. It is a native of China and Japan, flowering in June and July.

The fourth species has long, narrow, grass-like leaves, which come out from the root without order, sitting close to the ground; between these come up straight single stalks, which in good ground rise a foot and half high; at each joint of the stalk come out two leaves opposite, of the same form as the lower, but decreasing in their size upwards; under each pair of leaves, for an inch in length, there sweats out of the stalk a glutinous liquor, which is almost as clammy as birdlime, so that ants and other insects which happen to light upon these places, or attempt to creep up to the flowers, are fastened to the stalk; whence the title of Catchfly: the root is perennial, yellowish on the outside, white within: the stem round, not grooved, smooth, being terminated by a cluster of purple flowers, and from the two upper joints come out on each side of the stalk a cluster of the same flowers, so that the whole forms a sort of loose spike: these appear in the beginning of May, and the single flowers are succeeded by roundish seed-vessels, which are full of small angular seeds, ripening in July. It is a native of most parts of Europe.

The fifth has likewise a perennial root, the thickness of the little finger, white, of a slightly acrid and bitter taste, furnished with numerous fibres: the stalks are several, upright, from one to three feet high, round, hirsute, jointed, purple, the joints swelled: the uppermost branches forked: the leaves opposite, connate, ovate-acuminate, hirsute, slightly nerved: the calyx is hairy, striated, purple, five-toothed; in the female more turgid: the petals purple, obcordate: at the bottom of the lamina or broad spreading part are two or four small upright white blunt appendicles: the germ is ovate, surrounded by a nectary at the base: the capsule one-celled, with ten teeth at the mouth: seeds gray, somewhat rugged. It is a native of many parts of Europe.

There is a variety with double flowers, cultivated in gardens by the name of Red Bachelor's Buttons, which is an ornamental plant. and continues long in flower.

The sixth species has the stalks branched out much more than in the fifth sort, being weaker and more flaccid: the leaves are longer and more veined: the flowers stand singly upon pretty long peduncles, and are not produced in clusters as in that; it is very hairy, the calyx is more swollen, and it flowers a month after it. And Dr. Withering remarks, that the petals on the male plant have the laminæ divided down to the claws, but in the female they are only cloven half way down. Dr. John Sibthorp also states, that the capsules in the fifth are roundish, and that its scentless flowers stand open through the day; while this has conical capsules, and its odoriferous flowers open only towards evening. This also prefers a dry soil, while that spreads in a moist one. It is common in Siberia.

There are varieties with purple or blush-coloured flowers; with quadrifid petals; with hermaphrodite flowers; with double flowers, cultivated in gardens by the name of Double White Bachelor's Buttons.

Culture.—They may be increased with facility in the single sorts by seed, and parting the roots; and in the doubles by dividing or slipping the roots, and sometimes by cuttings of their stalks.

The seed should be sown in the early spring, as in March, in a bed or border of light earth, in an eastern aspect, each sort separate, raking them in lightly, or they may be sown in small drills. The plants come up in two or three weeks, when they should have occasional waterings and hand weedings: and when the plants are two or three inches high, be planted out in beds or borders, in rows six inches asunder, watering them till fresh rooted, letting them remain till the autumn or following spring, when they should be transplanted where they are to remain.

Both the single and double may be increased by slipping the roots; but it is more particularly applicable to the double sort, as they cannot with certainty be obtained from seed: the season for performing this work is the autumn, after the stalks decay, when the whole root may either be taken up, and divided into as many slips as are furnished with proper root-fibres, or the main root stand, and as many of the outer offsets as seem convenient be slipped off: these slips, when strong, should be planted at once where they are to remain; but when rather small and weak, it is better to plant them in nursery-rows, half a foot asunder, to remain a year, and then transplant them for good where they are to stand.

The planting of cuttings of the stalks is mostly practised for the double scarlet sort, when it increases but sparingly by offsets of the root. It is performed in summer, when the stalks are well advanced in growth, but before they flower, or have become hard and woody. Some of them should be cut off close to the bottom, and divided into lengths of from three to five joints, planting them in an easterly border of rich moist loamy earth, two-thirds of their length into the ground, leaving only one joint or eye out, watering them directly, and repeating it occasionally with necessary shade in hot weather. They will be well rooted, and form proper plants for transplanting in the autumn. If the cuttings, as soon as planted, are covered down close with hand-glasses, it will greatly promote their rooting, so as to form stronger plants before the winter season comes on.

The only culture they require afterwards is clearing them from weeds in summer, and supporting with stakes them which need it, cutting down and clearing away the decayed stalks in the autumn.

Of the third sort, as being rather more tender, some plants should be planted in pots, for moving under the protection of a frame or green-house in the winter season.

They are all very ornamental for the pleasure-grounds, particularly the doubles, and prosper in any common soil, remaining in all weathers unhurt, being of many years duration in root; and, when of some standing, send up many stalks every spring, terminated by numerous flowers, making a fine appearance in summer. The Scarlet Double Lychnis claims the preference, though the single scarlet sort is also very showy. And all the other species in their respective double-flowered states are ornamental. They are all kept in the nurseries for sale. In planting out, the tallest growers should be placed the most backward, and the others more towards the front.

2. LEUCOJUM VERNUM.

SPRING SNOW-FLAKE.

This genus contains plants of the bulbous-rooted flowery perennial kind.

It belongs to the class and order *Hexandria Monogynia*, and ranks in the natural order of *Spathaceæ*

The characters are: that the calyx is an oblong, obtuse, compressed spathe, gaping on the flat side, withering: the corolla is bell-shapedrexpanded: petals six, ovate, flat, conjoined at the base, with the tips thickish and stiffish: the stamina have six setaceous filaments, very short: anthers oblong, obtuse, quadrangular, upright, distant: the pistillum is a roundish inferior germ: style clavate, obtuse: stigma setaceous, upright, sharp, longer than the stamens: the pericarpium is a top-shaped capsule, three-celled, three-valved: the seeds several, roundish.

The species cultivated are: 1. *L. vernum*, Great Spring Snow-drop; 2. *L. æstivum*, Summer Snow-drop; 3. *L. autumnale*, Autumnal Snow-drop; 4. *L. strumosum*, Many-flowered Cape Leucojum.

The first has an oblong bulb, shaped like that of the Daffodil, but smaller: the leaves are flat, deep green, four or five in number, broader and longer than those of the Common Snow-drop: the scape angular, near a foot high, hollow and channelled: towards the top comes out a whitish sheath, opening on the side, out of which come out two or three flowers, hanging on slender peduncles: the corolla is much larger than that of the Common Snow-drop; and the ends of the petals are green. They appear in March, and have an agreeable scent, not much unlike those of the Hawthorn.

The flowers, which at first sight resemble those of the Common Snow-drop, are easily distinguished by the absence of the Three-leaved Nectary: they do not come out so soon by a month. It is called by Mr. Curtis, *Spring Snow-flake.* It is a native of Italy, &c.

The second species has a bulb the size of a Chesnut, somewhat ovate, outwardly pale-brown, inwardly white; coats numerous, thin, and closely compacted. But Miller asserts, that it is nearly as large as that of the Common Daffodil, and very like it in shape: that the leaves also are not unlike those of the Daffodil, more in number than in the first, and keeled at the bottom, where they fold over each other, and embrace the stalk: the leaves are about a foot and half in length, upright, nearly linear, almost an inch in breadth, obtuse; the lower ones shortest: the scape a little higher than the leaves, hollow, slightly flatted, two-edged, a little twisted, one side sometimes obtuse, the other acute: the peduncles for the most part five from the same sheath, each supporting a single flower, angular, and of unequal lengths: the flowers are pendulous, growing all one way, having little scent: the petals are white, finely grooved within, not at all uniting at bottom; the tips thickish, a little puckered, and marked with a green spot. The flowers appear at the end of April or the beginning of May, and there is a succession of them during three weeks, or longer in cool weather. It is a native of Hungary, &c.

To distinguish it from Galanthus, Mr. Curtis names it *Summer Snow-flake;* and in gardens it is known by the name of *Great Summer Snow-drop; Late* or *Tall Snow-drop.*

The third has a thick bulb for the size of the plant, composed of many glutinous coats, bitter, covered with a whitish membrane: the scape slender, brownish, a hand in height, supporting two or three small white flowers (sometimes only one), hanging down, having no smell. It is distinguished by its four or five capillary leaves, which begin to spring up after the flower is past, when the seeds are ripening, and sometimes after the heads are ripe. They abide all the winter and spring following, and wither away in the beginning of summer; leaving the scape to appear naked: the flowers are a little reddish at the bottom next the stalk. It is a native of Portugal, flowering in September.

The fourth has a roundish white bulb, less than a hazel nut: the leaves two or three, inclosed at the base in a white sheath, filiform, dotted with white, keeled at bottom, flat, or a little convex on the back, weak, and more or less lying on the ground: scape flexuose-erect, slender, about half a foot high, roundish, terminated by a spreading umbel of from three to seven flowers: the valves of the spathe lanceolate, acute, membranaceous, opposite, sometimes equal, sometimes not, pale: the peduncles filiform, one-flowered, unequal, from one to two inches in length: flowers without scent, coming out successively: petals white within, purplish without, oblong, lanceolate, three lines in length; the three inner bluntish; the three outer acute, with a blunt greenish keel: anthers purple: germ three-cornered, green: style white, swelled out at bottom into a body larger than the germ, plaited at bottom; thence awl-shaped, bluntly three-cornered, the length of the stamens: stigma obscurely trifid: capsule subglobular, three-cornered: the whole plant is smooth. It is a native of the Cape, flowering in November.

Culture.—These plants are readily increased by off-sets from the roots, which should be separated from the old roots about every third year, in the summer season, as soon as their leaves begin to decay, in the same manner as other bulbous roots.

They may also be increased by seeds, which should be sown in the latter end of August, in a border of light bog earth. The plants should remain in this situation till the second summer, and be then taken up at the proper period and planted in beds, till they begin to flower, when they should be removed into the borders. In this way they are three or four years before they flower.

The best method is, to procure the roots from the nurserymen, and plant them in the beginning of the autumn, in an eastern or northern border, where the soil is of a boggy quality, in patches of three or four together, in the fronts, putting them in to the depth of about three or four inches.

The off-sets should be planted out in beds a year or two after being taken off, till fit to be set out for flowering.

A soft loamy soil, or a mixture of loam and bog earth, are the most suited to their healthy growth. The last sort requires protection in the house with other Cape bulbs.

By planting them in the different aspects mentioned, a longer succecsion of flowers may be produced.

They are very ornamental in the fronts of the borders, or the sides of the lawns, and other parts near the house.

3. LYSIMACHIA NUMMULARIA.

CREEPING MONEYWORT.

THIS genus contains plants of the hardy herbaceous biennial and perennial kinds.

It belongs to the class and order *Pentandria Monogynia*, and ranks in the natural order of *Rotaceæ*.

The characters are: that the calyx is a five-parted perianthium, acute, erect, permanent: the corolla one-petalled, wheel-shaped: tube none: border five-parted, flat: divisions ovate-oblong: the stamina have five awl-shaped filaments, opposite to the divisions of the corolla: anthers acuminate: the pistillum is a roundish germ: style filiform, the length of the stamens: stigma obtuse: the pericarpium is a globular capsule, mucronate, one-celled, ten-valved (five-valved): the seeds very many, and angular: the receptacle globular, very large, dotted, (free.)

The species cultivated are: 1. *L. Ephemerum*, Willow-leaved Loose-strife; 2. *L. dubia*, Purple-flowered Loose-strife; 3. *L. stricta*, Upright Loose-strife.

The first has a perennial root: the stems several, upright, more than three feet high: the leaves narrrow, smooth, and at the base of these come out short side branches, with smaller leaves of the same shape: the flowers are produced in a long close upright spike, at the top of the stalk: the corolla is white: the stamens longer than the corolla. It is very distinct from the second sort by its size, five-valved capsules, white flowers, and leaves without dots. It is a native of Spain, flowering from July to September.

The second species is an annual (biennial) plant, too tender for the open air of this climate: it agrees with the first sort in habit, structure, and glaucous colour: it has no dots under the leaves: the petals are acuminate, a little longer than the calyx, converging, and deep red: the stamens are longer than the corolla, with brown anthers: and the flowers sessile in a spike. It is nearly allied to the first sort, and is a native of the Levant, flowering in July and August.

The third has the stem erect, four-cornered, smooth: the leaves quite entire, acute, smooth, dotted: the racemes simple: the pedicels in a sort of whorl, filiform, an inch long: the bractes lanceolate, very short: the divisions of the calyx lanceolate, smooth, dotted with red: the petals three times as long as the calyx, yellow, with red stripes and dots, and two dark-red spots: the stamens shorter than the corolla. It is a native of North America, flowering in July and August.

Culture.—These may all be easily increased either by sowing the seeds in the autumn, as soon as they are fully ripened, on a moist border, with an eastern aspect; or by parting the roots, and planting them out at the same season, in the same situations.

The plants should afterwards be kept clean, and in the first method removed into the situations where they are to remain in the autumn.

In the second sort the seeds should be sown on a hot-bed.

The third sort is increased by planting the bulbs thrown out from the axils of the leaves.

They all afford ornament and variety in the borders and other parts of pleasure-grounds.

PLATE XXXV.

1. LOBELIA CARDINALIS.

SCARLET LOBELIA, OR CARDINAL'S FLOWER.

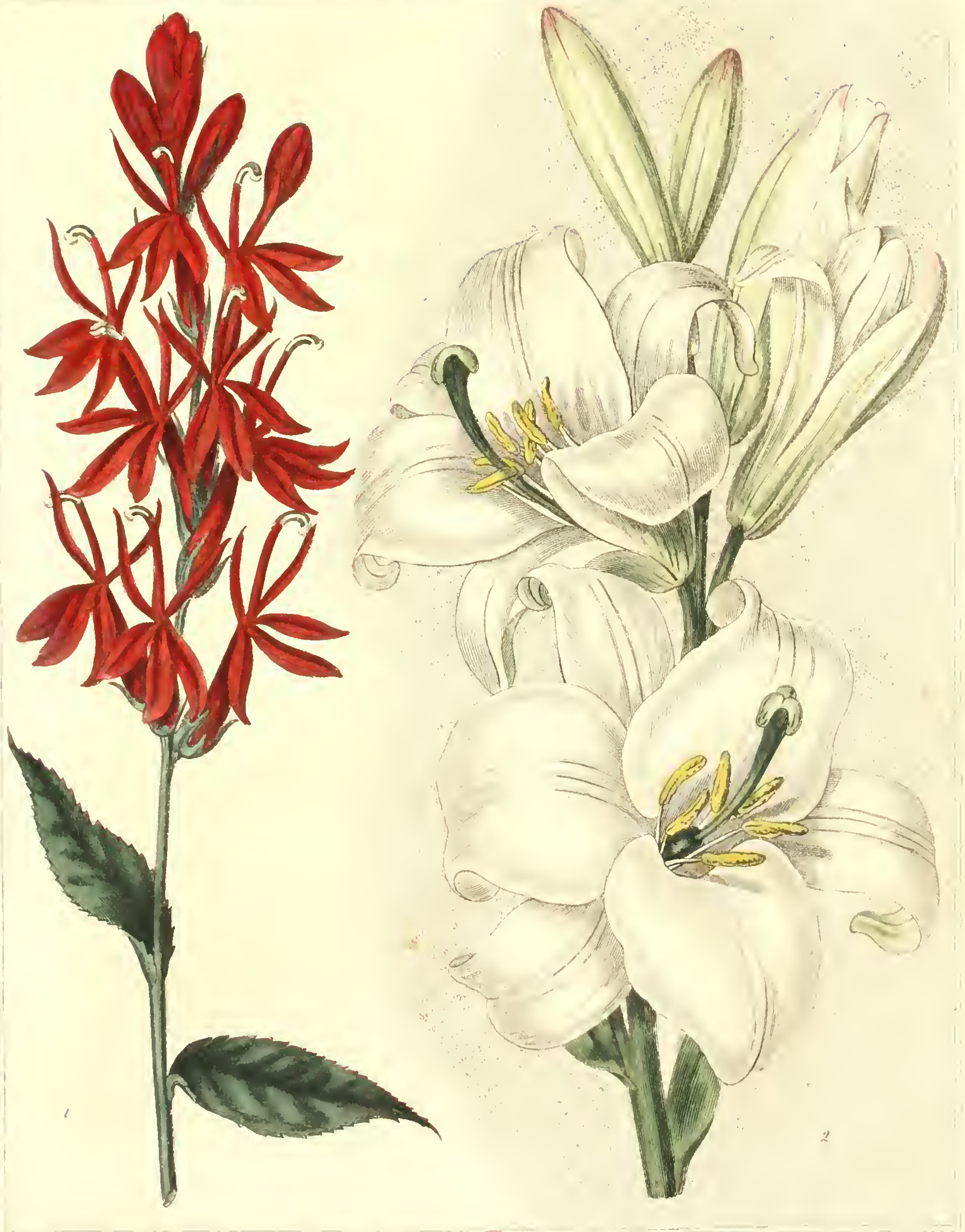
This genus contains plants of the herbaceous and under shrubby perenial kind.

It belongs to the class and order *Syngenesia Monogamia*, and ranks in the natural order of *Campanaceæ*.

The characters are: that the calyx is a one-leafed perianthium, five-cleft, very small: growing round the germ, withering: toothlets nearly equal: the two superior ones looking more upward: the corolla one-petalled, irregular: tube cylindric, longer than the calyx, divided longitudinally above: border five-parted, divisions lanceolate; of which the two superior ones are smaller, less reflex, more deeply divided, constituting an upper lip: the three inferior ones more spreading, frequently larger: the stamina have five awl-shaped filaments, the length of the tube of the petal, connate above: anthers connate into an oblong cylinder, gaping five ways at the base: the pistillum is a sharp-pointed, inferior germ: style cylindric, length of the stamens: stigma obtuse, hispid: the pericarpium an ovate capsule, two or three-celled, two or three-valved, gaping at the top, girt by the calyx: dissepiments contrary to the valves: the seeds a great many, very small: receptacle conic.

The species cultivated are: 1. *L. cardinalis*, Scarlet Lobelia, or Cardinal's Flower; 2. *L. siphilitica*, Blue Lobelia, or Cardinal Flower; 3. *L. longiflora*, Long-flowered Lobelia; 4. *L. pinifolia*, Pine-leaved Lobelia; 5. *L. inflata*, Bladder-podded Lobelia.

In the first, the root is composed of many white fleshy fibres: the lower leaves are oblong, and of a dark purplish colour on their upper



[illegible] E Edwards London Published Apr 1 1800 by G Kearsley Fleet Street [illegible]

1 Lobelia Cardinalis
Scarlet Lobelia or Cardinals flower.

2 Lilium Candidum
White Lily.

side: the stalks are erect, about a foot and a half high, with leaves about three inches long, and an inch and half broad in the middle, on very short petioles and placed alternately: the stalk is terminated by a spike (raceme) of flowers, of an exceeding beautiful scarlet colour; they have a pretty long tube, which is a little incurved, and at the top they are cut longitudinally into five segments; the two upper, which are the smallest, are greatly reflexed; the three under, which form the lower lip, are longer, and spread open. They appear at the end of July and in August, when they make a fine appearance for a month or more, and when the autumn proves favourable produce good seeds. It grows naturally in North America.

The second species has a perennial root: the stem simple, from a foot to two feet in height, and upwards, strong, simple, smooth, with angles formed by the decurrent edges of the leaves having stiffish hairs on them: the leaves are alternate, sessile, somewhat rugged: the flowers axillary, solitary, numerous, large, on short peduncles, forming altogether a long spike of a pale blue colour. It is a native of Virginia, flowering from August to October.

The third is an annual herbaceous elegant plant, seldom above fourteen or sixteen inches in height; the whole of it rough-haired: the stem almost upright, very much branched from all the axils: the leaves are alternate, sessile, subpinnatifid-toothed, sharpish, smooth, half a foot long: the peduncles one-flowered, axillary, solitary, villose. The whole plant is poisonous. It is a native of Jamaica, flowering from June to August.

The fourth species is a shrubby, upright, branched plant, the branches surrounded with abundance of narrow sharp leaves an inch in length: the flowers many, small, blue, at the tops of the twigs, among the leaves. It is a native of the Cape of Good Hope.

The fifth is a biennial plant in this climate: the stems channelled, hairy, two feet high: the leaves about two inches long, and one broad in the middle, sessile, light green: flowers small, on long, slender, axillary peduncles, forming a loose spike: the corolla light blue. It flowers in July, and is a native of Virginia, &c.

Culture.—The two first kinds may be increased by seed, cuttings of their stalks, and parting the roots.

The seeds should be sown in autumn, or early in spring, in a warm border, or in pots or boxes, so as to be moved to different situations in different seasons, to have shelter from frost, and shade from the mid-day sun in summer. Those sown in autumn generally come up more freely the following spring than those which are sown in that season. They should have shelter in hard frosts, either under a frame, or awning of mats, but be fully exposed in mild weather, giving occasional waterings in the spring and summer. When the plants have attained two or three inches growth, they should be pricked out in separate small pots of rich earth, giving water, and placing them in the shade till fresh rooted, repeating the waterings occasionally in hot dry weather, and shifting them into larger pots as they may require; in winter moving them into a frame to have occasional shelter from inclement weather; and in the spring following some of them may be turned out into the full ground about March, when they will flower the ensuing summer. Some should also be retained in pots to be moved under shelter in winter, as a reserve in case those in the open air should be killed by frost.

As these plants generally flower in the greatest perfection the first and second year of their blowing, it is proper to raise a supply of new plants every year or two, in order to have them flower in the utmost perfection every year.

The cuttings of the young stalks should be divided into lengths of five or six inches, and be planted in an easterly border, two parts deep, being covered down with hand-glasses, and watered occasionally. They mostly emit roots, and form young plants in a month or six weeks; when the glasses should be taken away, and the plants managed as the others.

These hardy sorts sometimes afford off-sets from their sides at bottom, which may be separated in autumn, and potted for young plants, being managed as the seedlings.

The last three sorts may also be raised by seeds procured from abroad, which should be sown in pots of light sandy earth in the autumn, and plunged in the bark-bed; and when the plants are three inches high, planted in separate pots, being re-plunged in the bark-bed, giving water and occasional shade till they are fresh rooted. They must remain constantly in the hot-house, and have frequen moderate waterings given them.

The first two sorts have a fine appearance in the borders and clumps of pleasure-grounds, where they will succeed when protected in winter from frosts.

And the tender sorts afford a fine variety in hot-house collections.

2. LILIUM CANDIDUM.

WHITE LILY.

This genus contains plants of the bulbous-rooted flowery perennial kind.

It belongs to the class and order *Hexandria Monogynia*, and ranks in the natural order of *Coronariæ*.

The characters are: that there is no calyx: the corolla is six-petalled, bell-shaped, narrowed beneath: petals upright, incumbent, obtusely carinated on the back, gradually more expanding, wider; with thick, reflex, obtuse tips: nectary, a longitudinal, tubular line, engraven on each petal from the base to the middle: the stamina have six awl-shaped filaments, upright, shorter than the corolla: anthers oblong, incumbent: the pistillum is an oblong germ, cylindric, striated with six furrows: style cylindric, length of the corolla: stigma thickish, triangular: the pericarpium is an oblong six-furrowed capsule, with a three-cornered, hollow, obtuse tip, three-celled, three-valved; the valves connected by hairs disposed in a cancellated manner; the seeds are numerous, incumbent in a twin order; flat, outwardly semi-orbicular.

The species cultivated are: 1. *L. candidum*, Common White

Lily; 2. *L. Catesbæi*, Catesby's Lily; 3. *L. bulbiferum*, Bulb-bearing or Orange Lily; 4. *L. Martagon*, Purple Martagon Lily, or Turk's Cap; 5. *L. Pomponium*, Pomponian Lily; 6. *L. chalcedonicum*, Scarlet Martagon Lily; 7. *L. superbum*, Great Yellow Martagon Lily; 8. *L. Canadense*, Canada Martagon Lily; 9. *L. Camschatcense*, Kamtschatka Lily; 10. *L. Philadelphicum*, Philadelphian Martagon Lily.

The first has a large bulb, from which proceed several succulent fibres: the stem stout, round, upright, usually about three feet in height: the leaves numerous, long, narrow-pointed, smooth, sessile: the flowers large and white, terminating the stem in a cluster on short peduncles: the petals within of a beautiful shining white; on the outside ridged and less luminous. It is a native of the Levant, flowering in June and July.

The principal varieties are; with striped flowers, or with blotched purple flowers, or with variegated striped leaves, or with yellow-edged leaves, with double flowers, and with pendulous flowers.

The first of these varieties is now become common; but the purple stain giving the flower a dull colour, the common white is generally preferred: the second is chiefly valued for its appearance in winter and spring; for the leaves coming out early in the autumn, spreading themselves flat on the ground, and being finely edged with a broad yellow band, make a pretty appearance during the winter and spring months, as it flowers earlier than the plain sort: the third is of little value, as the flowers never open well unless they are covered with glasses, nor have they any of the rich odour of the common sort: the fourth came originally from Constantinople; the stalk is much more slender; the leaves narrower and fewer in number; the flowers not quite so large, and the petals more contracted at the base; they always hang downwards; the stalks are sometimes very broad and flat, appearing as if two or three were joined together: when this happens, they sustain from sixty to one hundred flowers, and sometimes more; this however is merely accidental, as the same root scarcely ever produces the same two years together.

The second species is one of the least of the cultivated sorts, the whole plant when in bloom being frequently little more than a foot high; in its native soil it is described as growing to the height of two feet: the stalk is terminated by one upright flower: it is purple, slender, upright, round, smooth with a slight glaucous bloom on it, solid, stiffish: the root-leaves few, often only on the barren plant, on long petioles: the stem-leaves are numerous, alternately scattered, sessile, curved back, narrow-lanceolate, the upper ones gradually more ovate-lanceolate, quite entire, blunt with a purple tip, even on both sides, slenderly nerved, flat, a little fleshy, shrivelling: the flower has no scent, but is said by Catesby, to be variously shaded with red, orange, and lemon colours: it is remarked by Mr. Curtis, that it varies considerably in the breadth of its petals, in their colour and spots; and that it flowers usually in July or August.

The third has a subovate bulb in its native state, consisting of thick white loosely imbricate scales, putting out a few thick fibres from the bottom: the stem upright, a foot and half high, striated-angular, smooth or slightly hairy, with numerous scattered leaves, the upper ones spreading out horizontally, acute, quite entire, obsoletely hirsute, a little rough to the touch, dark green, slightly nerved, sessile, lanceolate-linear, three or four inches long; each, excepting the lower, frequently producing a roundish and shining pale-green bulb or two in the axil: the peduncle terminating, round, thick, somewhat villose; either solitary, or two, three or four together, forming a sort of umbel; some naked, others having a bracte or two: the flower without scent, red-orange within, pale-orange on the outside. It is a native of Austria, &c.

There are varieties with double flowers, with variegated leaves, with smaller stems, and the bulb-bearing fiery Lily, which seldom rises more than half the height of the others: the leaves are narrower: the flowers smaller, and of a brighter flame-colour, few in number, and more erect; they come out a month before those of the common sort, and the stalks put out bulbs at most of the axils, which, if taken off when the stalks decay, and planted, produce plants.

The sub-varieties are: the great broad leafed, the many-flowered, the small, and the hoary bulb-bearing Lily.

The fourth species rises with a strong stalk from three to four feet high: the leaves are broad; the flowers dark purple, with some spots of black; they are produced in loose spikes, appear in June, and have a disagreeable odour when near, but not so offensive as the seventh sort: the bulb is, according to Martyn, composed of lanceolate, yellow, loose scales, with thick, long, whitish fibres at bottom: the stem straight, round, shining, from a foot and a half to four feet in height, at the top of the bulb furnished with rooting fibres in whorls, pale green at bottom, the rest having black spots scattered over it; above and below the leaves are scattered, but in the middle they are in whorls; lanceolate, acute, somewhat nerved, quite entire, subpetioled; the stem terminates in a loose raceme, many-flowered, few-flowered, or sometimes one-flowered only: the peduncles purple, dotted with black, with lanceolate sharp bractes, two to the lower, and one to the upper flowers: the petals purple or pale, more or less spotted with black on both sides, the three outer hirsute, with a raised line along the middle. It is a native of the south of Europe, &c.

It varies with white flowers, with double flowers, with red flowers and hairy stalks, and with imperial divided stalks.

The fifth species has a pretty large yellow scaly root, from which arises an upright stalk nearly three feet high, with long narrow leaves, almost triangular, having a longitudinal ridge on their under side; they are deep green, and terminate in acute points; the upper part of the stalk divides into four or five peduncles, each sustaining a single flower of a fine carmine colour, with a few dark spots scattered over it; they appear in July, and, when the season is not hot, continue a considerable time in beauty. It is a native of the Pyrenees, &c.

It varies with double red flowers, with white flowers, with double white flowers, with red spotted flowers, with white spotted flowers, with yellow flowers, with yellow spotted flowers, with early scarlet flowers, and the Major Scarlet Pompony.

The sixth species is from three to four feet in height; the leaves are much broader than those of the fifth sort, and appear as if they were edged with white; they are placed very closely upon the stalks: the flowers are of a bright scarlet, and seldom more than five or six in number: it flowers late in July, and in cool seasons continues in beauty great part of August. It is remarked by Linnæus, that the raceme, before the flowers open, is scarcely curved in, as in the fifth sort, and that the stem is clothed with clustered leaves to the very top. It is a native of the Levant.

According to Mr. Curtis, it varies in the number of flowers, from one to six, and the colour in some is of a blood red: also with deep scarlet flowers, with purple flowers, and with large bunches of flowers.

The seventh has a round stem, very smooth and even, panicled at top, two feet high and more; the branches alternate, divaricating, upright, like the stem, reflex at top, flower-bearing: the stem-leaves alternate, subpetioled, folded together at the base, ovate-oblong, acute, quite entire, smooth, five-nerved beneath, spreading; one flower at the end of each branch: the corollas are large and handsome: the petals oblong, acute, white with large purple spots and smaller black ones from the middle to the base: nectareous keel bearded: according to Catesby the flowers grow alternately on long footstalks, and are of an orange and lemon colour, thick spotted with dark brown; but Miller says they are produced in form of a pyramid, and when the roots are strong there are forty or fifty on a stalk, large, yellow with dark spots, and make a fine appearance, but smell so disagreeably, that few persons can endure to be near them: they appear at the end of June. It is a native of North America.

The eighth species has oblong and large bulbs: the stems from four to five feet high: the leaves oblong and pointed: the flowers large, yellow spotted with black, shaped like those of the orange lily, and the petals not turned back so much as in the other Martagons: they come out in the beginning of August, and, when the roots are large, in great numbers, making a fine appearance. According to Catesby, on the top of the stem are about twelve pendulous flowers on long arched peduncles, and the petals are reflected very little. It flowers in July and August, and is found in North America.

There is a variety with larger deeper-coloured flowers.

The ninth has a roundish small bulb: the stem quite simple round, even, a foot high: the leaves lanceolate or lanceolate-linear, sessile, four or six, striated, rather blunt, even, upright; two or three of the upper ones usually alternate, narrower: the flowers terminating, few, an inch and a half in diameter, on very short, naked, almost upright peduncles: the petals ovate, blunt, even, striated, purple, not rolled back, attenuated at the base: the filaments shorter by half than the corolla: the anthers upright: the germ triangular and oblong: style none: stigmas three, oblong, curved back, almost the length of the germ. It is a native of Kamtschatka.

The tenth species has a smaller root than in the other sorts, scaly and white: the stem single, upright, near a foot and half high: the leaves in four or five whorls, short, pretty broad, obtuse: the stem terminated by two flowers which stand erect, upon short separate peduncles; they are shaped like those of the bulb-bearing fiery Lily, but the petals are narrower at their base, so that there is a considerable space between them, but upwards they enlarge and approximate, forming a sort of open bell-shaped corolla, but they terminate in acute points: are of a bright purple colour, marked with several dark purple spots towards the base. It flowers in July, and the seeds ripen at the end of September. It is a native of North America.

Culture.—All the sorts are capable of being increased by planting the off-sets of the root, and by sowing seeds to obtain new varieties.

All the sorts of these roots afford plenty of off-sets every year, which when greatly wanted may be taken off annually in autumn; but once in two or three years is better, according as they are wanted; the proper time for which is in summer and autumn, when the flower is past and the stalks decayed, either separating the off-sets from the mother bulbs in the ground, or taking the whole up, and separating all the off-sets, small and great, from the main bulbs; the small off-sets being then planted in beds a foot asunder and three inches deep, to remain a year or two; and the large bulbs again in the borders, &c. singly. The off-sets in the nursery beds may also, after having obtained size and strength for flowering in perfection, be planted out where they are wanted.

The sowing of the seed is chiefly practised for the Martagons to obtain new varieties, which should be done in autumn, soon after the seed is ripe, in pots or boxes of rich light sandy earth, with holes in the bottoms half an inch deep; placing the pots in a sunny sheltered situation all winter, refreshing them at first often with water, and the plants will appear in the spring; when, about April, remove them to have only the morning sun all the summer, giving moderate waterings: in August the bulbs should be transplanted into nursery-beds in flat drills, an inch deep, and three or four asunder; when, as the bulbs will be very small, scatter the earth and bulbs together into the drills, covering them with earth to the above depth; and after having grown in this situation till the August or September following, they should be transplanted into another bed, placing them eight or nine inches each way asunder, to remain to show their first flowers; after which they may be finally planted out into the pleasure-ground.

New varieties of the other sorts may be raised in the same way.

The bulb-bearing varieties may also be increased by the little bulbs put forth from the axils of the leaves without taking up the old bulbs.

The same method of planting and general culture answers for all the different sorts.

The most proper time, as has been seen, for planting and transplanting them is in autumn, when their flowers and stalks decay, which is generally about September, the roots being then at rest for a short space of time, as well as for procuring roots to plant. The bulbs taken up at the above season may be kept out of ground, if necessary, till October or November: the White Lilies, however, do not succeed if kept long out of the earth, and all the others succeed best when planted again as soon as possible. The bulbs of all the sorts are sold at the nurseries.

They should be planted singly, as they soon increase by off-sets into large bunches, disposing them in assemblage in different parts of the borders, and towards the fronts of the principal shrubbery clumps; placing them three or four inches deep, and at good distances from one another, intermixing the different sorts, placing some forward, and others more backward, to effect the greater show and variety.

Some may likewise be planted in separate beds by themselves, twelve or fifteen inches asunder; either of different sorts together, or each in distinct beds, or in separate rows, &c.

After being thus planted out, few of the sorts require any particular culture, as they are capable of enduring all weather at every season. It is however necessary to destroy all weeds; and, as some of them run up with pretty tall slender stalks, to support them with sticks to preserve effectually their upright position, by which their flowers will appear to the best advantage.

Some of the more tender sorts, as the second, fourth, eighth, and tenth species, should, however, be protected in severe winters, by applying tanner's bark or some other similar substance over their roots.

They should all, as has been said, remain undisturbed two or three years, or longer, as by remaining they flower stronger after the first year; and having increased by off-sets into large bunches, many stalks will rise from each bunch of roots, so as to exhibit a large cluster of flowers: it is, however, proper to take up the bulbs entirely every three or four years at least, at the decay of the stalk, to separate the increased off-sets, both for propagation and to disburthen the main roots, and give them room to take their proper growth in.

After being taken up in the autumn, all the sorts should, as just observed, be replanted as soon as possible, especially the White Lily sorts, as they soon begin to emit roots.

They are all valuable as plants of ornament for the beauty of their flowers, which have a noble appearance: they are of course proper ornaments for the pleasure-ground; and when the different sorts are properly intermixed, they effect a most elegant variety, succeeding each other in blow upwards of three months. When wanted particularly for shady or close places the common White Lily, Orange Lily, and common Martagons, are the most proper, as they thrive under trees. The Orange Lily also answers well in small gardens, in the midst of buildings in towns and cities. Besides planting the different sorts for the beauty of their flowers, many of the striped-leaved White Lily sorts should be placed towards the fronts of the most conspicuous parts for the beauty of their leaves in autumn, winter, and spring, which, if disposed alternately with the Common White Lily, whose leaves are entirely green, a most striking variety will be produced.

The tall-growing sorts are only proper for large borders and clumps, in mixture with other large herbaceous plants.

PLATE XXXVI.

1. MIRABILIS JALAPA.

MARVEL OF PERU.

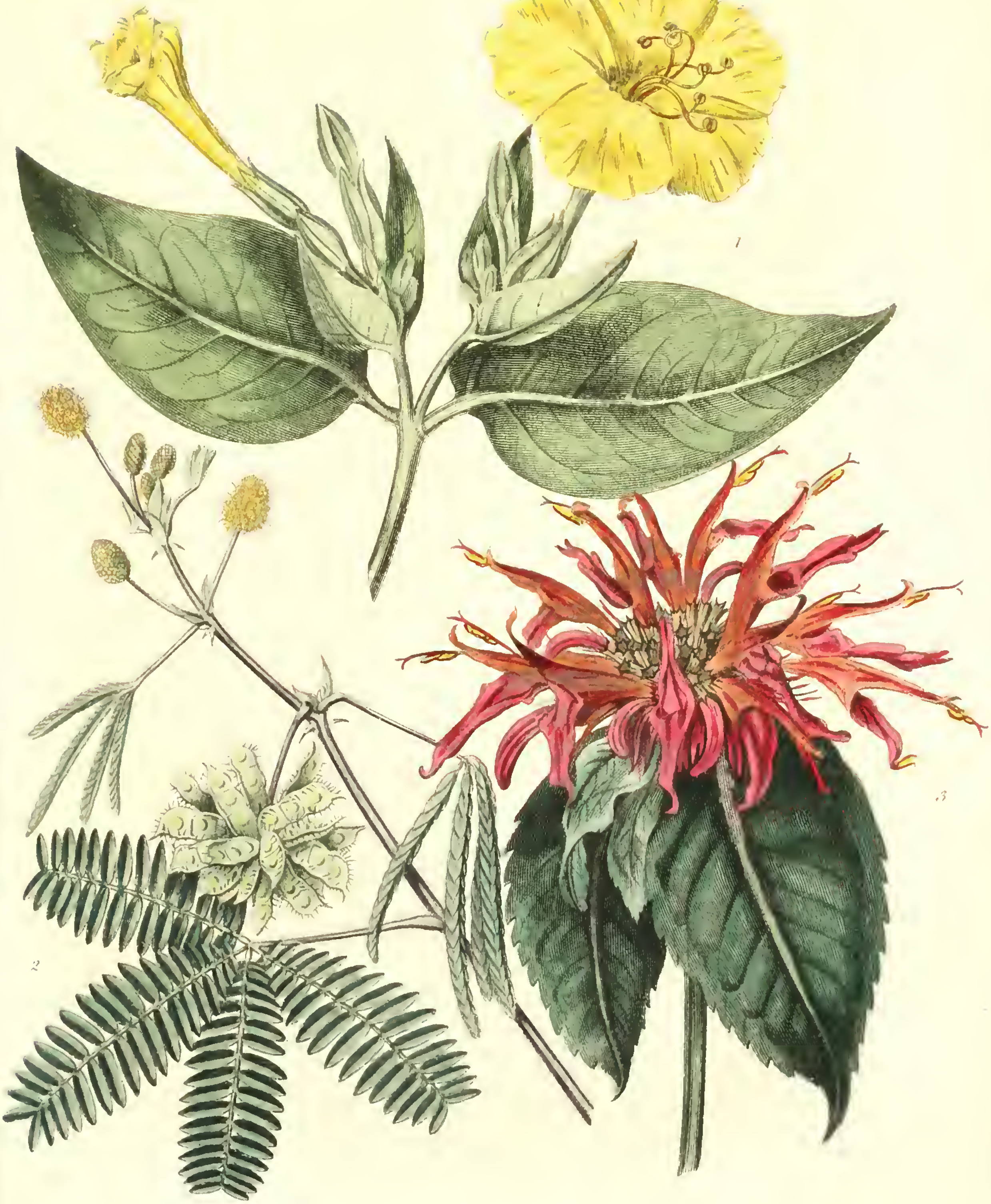
This genus furnishes plants of the flowery perennial kind.

It belongs to the class and order *Pentandria Monogynia*, and ranks in the natural order of *Nyctagines*.

The characters are: that the calyx has the outer perianthium one-leafed, erect-ventricose, inferior, five-parted: segments ovate-lanceolate, sharp, unequal, permanent: inner globular placed under the petal, with a contracted entire mouth, and permanent: the corolla is one-petalled, funnel-form: the tube slender, long, thicker at top, placed on the inner calyx: border from upright spreading, entire, bluntly five-cleft, plaited: nectary spherical, fleshy, surrounding the germ, with a five-toothed mouth: teeth very small, triangular, converging: the stamina have five filaments inserted into the orifice of the nectary, and alternate with its teeth, within the inner calyx free, more slender, fastened at bottom to the tube of the corolla, filiform, the length of the corolla, inclining, unequal: anthers twin, roundish, rising: the pistillum is a turbinate germ, within the nectary: style filiform, the length and situation of the stamens: stigma globular, dotted, rising: there is no pericarpium: the inner calyx incrusts the seed and falls with it: the seed single, ovate-five-cornered.

The species cultivated are: 1. *M. jalapa*, Common Marvel of Peru; 2. *M. dichotoma*, Forked Marvel of Peru; 3. *M. longiflora*, Sweet-scented Marvel of Peru.

The first has a thick fleshy root: the stem thick, upright, much branched, and divided three feet or more in height: the leaves are broad, oblong, and opposite: flowers terminating, about six, in clus-



Drawn by S. Edwards　　London Published Mar 1 [illegible] by G Kearsley Fleet Street　　Engraved by F. Sansom

1 *Mirabilis jalapa* / *Marvel of Peru*　　2 *Mimosa sensitiva* / *Sensitive Plant*　　3 *Monarda didyma* / *Scarlet Monarda*

ters close together without any leaflets between them, and not longer than the leaf. It is perennial, and a native of both the Indies, flowering from July to October.

There are several varieties in the colour of the flowers, as purple or red, white, yellow, variegated purple and white, and variegated purple and yellow, but which resolve themselves into two principal varieties; as with purple and white flowers, which are variable; some being plain purple, others plain white, but most of them variegated with the two colours, and all found occasionally on the same plant; and with red and yellow flowers, generally mixed, but sometimes distinct on the same plant; some plants having only plain flowers, others only variegated, and others again both plain and variegated: but the plants which are raised from seeds of the purple and white never produce red and yellow flowers, or the contrary.

All these varieties are highly ornamental during the months of July, August, and September, and when the season continues mild, often last till near the end of October. The flowers opening only towards the evening, while the weather continues warm, but in moderate cool weather, when the sun is obscured, they continue open almost the whole day, and are produced so plentifully at the ends of the branches, that when expanded the plant seems entirely covered with them, and from some being plain, others variegated, on the same plant, have a fine appearance.

The second species resembles the first sort very much: the stalks have thick swollen joints: the leaves are smaller: the flowers not much more than half the size, and do not vary in their colour from their natural purplish-red: the fruit is very rough. It is a native of Mexico; and common in the West Indies, where it is termed the *Four o'Clock Flower*, from the circumstance of the flowers opening at that time of the day.

In the third, the stalks fall on the ground, if not supported; they grow about three feet in length, and divide into several branches; are hairy and clammy: the flowers come out at the ends of the branches, are white, have very long slender tubes, and a faint musky odour, as in the other sorts; are shut during the day, and expand as the sun declines: the seeds are larger than those of the other species, and as rough as those of the second sort. It is a native of Mexico, flowering from June till September.

Culture.—In all the sorts the propagation is effected by sowing the seed in the spring season, either on a warm border or in a hot-bed; but the latter method produces the plants considerably more early, and in the greatest perfection.

When cultivated on warm south borders, in the places where the plants are to remain, the seed should be sown about the middle of April, either in patches or in shallow drills, half an inch deep, and six inches asunder: and when the places can be covered with hand-glasses, or a frame and lights, or the seed be sown in pots under those protections, or any other occasional shelter during the night-time and in cold weather, it will greatly forward the germination of the seed, as well as the growth of the young plants afterwards. In the latter method, about June, the plants will be fit to plant out into the borders or into pots. Moist weather should be chosen for this purpose, and water and occasional shade be given till well rooted: they then readily grow, and acquire a tolerable size; but they do not attain to a large size, or flower so early by a month or six weeks as those forwarded in the hot-bed.

In the latter method, a hot-bed should be prepared in March, or early in April, under frame and lights, and earthed over about six inches deep; then sowing the seed in the earth of the bed in shallow drills half an inch deep, as directed above, or in pots of rich earth the same depth, plunging them in the earth of the bed. The latter is the better method. The plants soon rise; when they should have fresh air daily, in common with the other plants of the bed, and frequent refreshings of water; and when nearly two inches high, be planted out into another fresh hot-bed to forward them, placing them either in the earth of the bed, four or five inches asunder, or singly in small pots (thirty-twos), plunging them in the bed; water and shade should be immediately given till fresh-rooted, continuing the care of admitting fresh air every mild day; and about the middle or latter end of May, when they have acquired a good size and strength, they should be inured by degrees to the full air, so as that they may be removed into it fully about the beginning of June, choosing mild cloudy moist weather, if possible, for the business; taking up such as grow in the beds, with balls of earth about their roots, and planting them in the borders; but those in pots may be turned out with the whole ball entire, and planted in that way. Some should also be removed into large pots for moving into particular situations. Water should be directly given, and occasional shade to such as require it, repeating the waterings to the whole, till they have struck fresh root and begun to grow, when they will not require any further culture, except the occasional support of sticks, which is most necessary in the last sort.

As the seed ripens well, it will frequently prevent the trouble of preserving the roots.

But when these are taken out of the ground in autumn, and laid in dry sand during the winter, secure from frost, and planted again in the spring, they grow much larger and flower earlier than the seedling plants: or when the roots are covered in winter with tanner's bark to keep out the frost, they often remain secure in the borders, where the soil is dry. When the roots thus taken out of the ground are planted the following spring in large pots, and plunged into a hot-bed, under a deep frame, they may be brought forward, and raised to the height of four or five feet, and flower much earlier in the season.

In collecting the seeds, care should be taken not to save any from the plants which have plain flowers; and in order to have variegated flowers, the plain flowers should be pulled off from those plants which are intended to stand for seed.

As the second sort is less hardy than the first and third, unless the plants are brought forward in the spring they seldom flower till very late, and their seeds do not ripen perfectly.

All the sorts are proper for the principal borders of pleasure-grounds, being very ornamental in their large branchy growth, as well as in their extensive flowering.

The root of all the sorts is a strong purgative.

2. MIMOSA SENSITIVA.

SENSITIVE PLANT.

This genus contains plants of the shrubby and under shrubby kind.

It belongs to the class and order *Polygamia Monœcia*, and ranks in the natural order of *Lomentaceæ*.

The characters are: that the calyx is a one-leafed perianthium, five-toothed, very small: the corolla has one petal, funnel-form, half-five-cleft, small: the stamina have capillary, very long filaments: anthers incumbent: the pistillum is an oblong germ: style filiform, shorter than the stamens: stigma truncated: the pericarpium is a long legume, with several transverse partitions: the seeds many, roundish, of various forms.

The species cultivated are: 1. *M. plena*, Double-flowered Annual Sensitive Mimosa; 2. *M. viva*, Lively Mimosa; 3. *M. quadrivalvis*, Quadrivalve-podded Humble Mimosa; 4. *M. sensitiva*, Sensitive Plant; 5. *M. pudica*, Humble Plant; 6. *M. virgata*, Long-twigged Mimosa; 7. *M. punctata*, Spotted-stalked Mimosa; 8. *M. pernambucana*, Slothful Mimosa; 9. *M. asperata*, Hairy-podded Mimosa; 10. *M. pigra*, Slow American Sensitive Plant; 11. *M. glauca*, Glaucous Mimosa; 12. *M. cornigera*, Horned Mimosa, or Cuckold Tree; 13. *M. horrida*, Horrid Mimosa; 14. *M. Farnesiana*, Farnesian Mimosa, or Sponge Tree; 15. *M. Nilotica*, Egyptian Mimosa; 16. *M. verticillata*, Whorl-leaved Mimosa; 17. *M. arborea*, Rough Tree Mimosa; 18. *M. Lebbeck*, Lebbeck, or Egyptian Mimosa; 19. *M. latisiliqua*, Broad-podded Mimosa; 20. *M. tamarindifolia*, Tamarind-leaved American Mimosa; 21. *M. circinalis*, Spiral Mimosa; 22. *M. pennata*, Small-leaved Mimosa; 23. *M. latifolia*, Broad-leaved Mimosa; 24. *M. purpurea*, Purple Mimosa, or Soldier Wood; 25. *M. reticulata*, Netted Mimosa; 26. *M. scandens*, Climbing Mimosa: 27. *M. myrtifolia*, Myrtle-leaved Mimosa; 28. *M. suaveolens*, Sweet-scented Mimosa.

The first, when cultivated in the garden, has great resemblance to the seventh sort; but the stalks never grow so erect, the wings of the leaves are longer, and stand more horizontal: the heads of flowers are much larger, the stamens are longer, and the flowers on the under side of the spike which have no stamens are double; the pods also are shorter, and much broader than those of that sort.

It is annual; the stems round, herbaceous, smooth, procumbent, rooting at all the joints: the leaves three-paired or four-paired, contracting with the least touch: from the axils of these spring erect peduncles, four or five inches high, with scales the whole length, sustaining handsome, yellow, almost globular heads, the same size with those of red clover: the flowers different in shape, nature and use; those in the middle truly five-petalled, in small five-cleft calyxes, with many long stamens; but those in the circuit, instead of stamens, have oblong, beautiful, golden leaflets, much wider and handsomer than the true petals, which are small and of a greenish colour. These double flowers are barren; but the single ones are succeeded by flat, smooth, two-valved legumes, containing several black, shining, compressed seeds. It is a native of La Vera Cruz.

The second species has trailing herbaceous stalks, putting out roots at every joint, and spreading to a considerable distance. A single plant, in the stove, in one summer, has spread near three feet square, and the branches so closely joined, as to cover the surface of the bed; but when permitted to grow thus, the plants seldom produce flowers: the leaflets are narrow, and the petioles are short and smooth: the flowers axillary, on naked peduncles about an inch in length; they are of a pale yellowish colour, and are collected into small globular heads: the legumes short, flat, jointed, containing three or four compressed, roundish seeds. It is a native of Jamaica.

The third has a creeping root: the stalks slender, having four acute angles, armed pretty closely with short recurved spines: the leaves on long prickly foot-stalks, and thinly placed on the branches:

the wings two pairs, about an inch asunder, short: the leaflets narrow, not very close: the peduncles axillary, sustaining a small globular head of purple flowers: the legumes four-cornered, two inches long, four-celled, four-valved; containing several angular seeds in each cell. It was found at La Vera Cruz.

The fourth species rises with a slender woody stalk, seven or eight feet high, armed with short recurved thorns: the leaves grow upon long foot stalks which are prickly, each sustaining two pairs of wings; the outer pair has two lobes which join at their base, and are rounded on the outside, but straight on the inner edges, shaped like a pair of sheep-shears; they are much larger than the inner, are almost two inches long, and one inch broad in the middle: from the place where these are inserted into the stalk, come out small branches, which have three or four globular heads of pale purplish flowers coming out from the side, on short peduncles: and the principal stalk has many of those heads of flowers on the upper part for more than a foot in length; and this, as also the branches, is terminated by similar heads of flowers: the pods are broad, flat, jointed, opening by two valves, containing one, two, or three compressed orbicular seeds: the leaves move but slowly when touched, but the foot-stalks fall when they are pressed very hard. It is a native of Brazil.

The fifth has the roots composed of many hairy fibres, which sit close together, from which come out several woody stalks, which decline towards the ground, unless they are supported; they are armed with short recurved spines, and have winged or pinnate leaves, composed of four, and sometimes five pinnas, whose bases join at a point, where they are inserted into the foot-stalk, spreading upwards like the fingers of a hand: the flowers from the axils, on short peduncles, collected in small globular heads, of a yellow colour: the pods short, flat, jointed, in close clusters; almost covered with stinging hairy covers. It is a native of Brazil.

The sixth species has the spike roundish, nodding: the flowers ten-stamened, and yellow; the lower ones of the spike without stamens or petals. It is a native of the West Indies, flowering in July and August.

The seventh rises with upright branching stalks six or seven feet high, becoming woody towards the root, with callous dots dispersed upon it, but not perennial (at least they are not so here in any situation, the plants always decaying in winter); they are smooth, and the leaves are composed of four or five pairs of long winged lobes, which have about twenty pairs of small leaves ranged along the midrib; are smooth and rounded at their points, of a full green on their upper side, but pale on their under: these small leaves contract themselves together on their being touched, but the foot-stalks do not decline at the same time, as those do which are titled Humble Plants; it is therefore called the Sensitive Plant by way of distinction: the flowers are produced upon long foot-stalks, which come out from the wings of the leaves, and are disposed in globular heads which nod downward, are yellow; and all those which have petals have ten stamina in each, but those situated round the border have neither petals nor stamina; those on the upper part of the spike are succeeded by pods an inch and a half long, and a quarter of an inch broad, which change to a dark brown when ripe, inclosing three or four compressed, shining, black seeds. It is probably a native of America.

The eighth species has the stems seldom more than two feet and a half high, and smooth: the leaves are composed of three or four pinnas, which are shorter, and the leaflets much narrower than in the first and seventh sorts; the heads of the flowers are smaller, being made up of many long white filaments, forming altogether a round head, and the pods longer and narrower, an inch long, and a quarter of an inch broad, with a round protuberance at each seed. It grows naturally in all the islands of the West Indies, where it has its name from the leaves not contracting on being touched.

The ninth species has a shrubby erect stalk about five feet high, hairy and armed with short, broad, strong thorns, which are white, standing on each side, almost opposite, or alternate: the leaves five or six-paired, with a strong midrib, and between each pair two short strong spines, pointing out each way: the leaflets extremely narrow and very close: towards the upper part of the stalk the flowers are produced from the sides on short peduncles; they are collected into globular heads, and are of a bright purple colour: the stalks are also terminated by smaller heads of the like flowers: the pods flat, jointed, about two inches long, and a quarter of an inch broad, spreading like rays, there being commonly five or six joined together at the base: they separate at each articulation, leaving the two side membranes or borders standing: the seeds, which are compressed and square, drop out from the joints of the pods, which are hairy at first, but as they ripen become smooth: the petioles do not fall on being touched, but the leaflets close up. It is a native of La Vera Cruz.

The tenth has the stem recurved, prickles scattered over it in pairs: the leaves commonly six-paired, with many paired pinnas: on the universal petioles there are recurved prickles between each of the partial ones; and there is a straight upright prickle which is longer, between each pair of the partial ones, in place of a gland: the heads are globular: the legumes membranaceous-compressed, jointed, rugged. It is a native of South America.

The eleventh species has the spikes globular, large, peduncled: the flowers white, apetalous, ten-stamened: the legumes long, flat. It flowers in April, and the seeds ripen in autumn; found at La Vera Cruz.

The twelfth is a tree which seldom exceeds twelve feet in height: it has numerous branches forming a pyramidal figure: the leaves are small; the flowers are small, yellow, and void of scent, in a close cylindrical spike, an inch and a half long: the legumes coriaceous, containing a buttery pulp, in which the seeds are rolled up: the spines are very singular, subaxillary and connate at the base, resembling the horns of oxen; brown, shining, hollow, and the longest more than five inches in length; they are all over the tree; and when the pods are ripe and the leaves fallen, they have a singular appearance. It is a native of Carthagena, flowering in June and July, and ripening seeds in September.

The thirteenth species has the branches angular, smooth, with a brown bark: the leaves sometimes two from the axil of the spines: partial four or five-paired, inner shorter, with leaflets from five to seven-paired, outer eight to eleven-paired: leaflets linear, acute, smooth: the spines in pairs white, purple at the tip: the flowers in a globular head, axillary and solitary, first sessile, then peduncled, shorter than the leaves: the legumes compressed, and attenuated at the base. It is a native of the East and West Indies, &c.

The fourteenth has the flowers many-stamened, very fragrant, yellow, in sessile heads: the petioles have a gland below the leaflets: the legumes are fusiform. On account of the sweetness of its flowers, it has been dispersed through most parts of Europe. It is brought by the Italian gardeners, who bring over Orange-trees, &c. in young plants, under the name of *Gazia.* It is a native of Saint Domingo, flowering from June to August.

The fifteenth species is a tree which arrives at a large size in countries where it grows naturally, but in this climate is rarely seen more than eight or ten feet high: it has the habit of the fourteenth sort; differing in having no callous dots upon the branches: the bark is purple: the spines in pairs, and longer than those of the fourteenth: the branches purple, even: the partial leaves about five pairs; between two pairs of the outer ones a gland is inserted into the common petiole: the legumes necklace-shaped, compressed: the joints roundish-rhomb-shaped: flowers many-stamened, in peduncled heads. It is a native of Egypt and Arabia. It is the tree which yields the Gum Arabic.

The sixteenth has leaves simple, linear, and pungent or hard and prickly at the end, and growing in whorls six or seven together; but it has dissimilar leaves, and the primordial ones, or two or three first leaves which appear on the seedling plants, are bipinnate. It is a native of New South Wales, flowering from March to May.

According to Mr. Curtis, it is some years in arriving at its flowering state.

The seventeenth is a lofty tree, with an upright smooth trunk, covered with an ash-coloured bark: the branches diverging, bent down, smooth: the partial leaves twelve-paired: the universal petiole round, striated, ferruginous-pubescent: partial petioles also ferruginous: the glands roundish, concave, between the petioles: the scalelets bifid, minute, at the base of the partial petioles: pinnas sixteen or eighteen-paired, halved, subsessile, acute, entire, smooth: the spikes peduncled, subglobular, composed of aggregate, sessile, white flowers: the peduncles axillary, and slender: the seeds spherical, shining black. It is a native of Jamaica, where it is called *Mountain or Wild Tamarind Tree.*

The eighteenth has the leaves destitute of glands: the pinnas from twelve to twenty, an inch in length: the bundles of flowers peduncled: the legume a span long. It is cultivated in the gardens at Cairo, where it flowers in June, and becomes a large tree. It is probably a native of Egypt.

The nineteenth has the bracteas half-cordate: the peduncles in threes: the flowers in heads: an obsolete gland on the common petiole below the partial pinnas: the germs are globular, two-valved; with two roundish, concave or hemispherical leaflets: the leaves very smooth. It is a native of the West Indies, flowering most part of the summer.

The twentieth species has the branches with few recurved prickles: the leaves four or five-paired: a gland between the lowest partial ones, which are twelve-paired, but the lowest pinnule wants the opposite on the inside: on the common petiole are two remote prickles, underneath between each partial one: the stipules wide, acuminate, purple: the legumes very wide. It is a native of America.

In the twenty-first, the leaves divide into many ramifications: the leaflets are roundish, and placed in very regular order: the seeds, which are flat, and one half of a beautiful red colour, the other half of a deep black, grow in long twisted pods, and hanging by a small thread for some time out of the pod, when they are ripe, make a very agreeable appearance. It was brought from the Bahama Islands.

The twenty-second species is frutescent, being a large procumbent branching shrub: the panicle very much branched, naked, terminating the stem and branches: the prickles small, scattered over the stem and panicle: the leaves having from twelve to twenty pairs of partial leaves, with an oblong melliferous pore at the base of the general petiole: the leaflets linear and almost capillary: there are no prickles on the petioles or peduncles, but a gland above the base of the petioles: the flowers white, polygamous, in a vast diffused terminating panicle, of very many small globular heads. It is a native of the East Indies.

The bark is there converted into a sort of tow, which is used for stopping cracks both in houses and boats.

The twenty-third sort has the flowers many-stamened, sessile: the leaves are like those of the Walnut; and the flowers are purple. It is a native of South America.

The twenty-fourth has also purple flowers, and is a native of South America.

The twenty-fifth is a tree with rigid branches, that are flexuose from bud to bud: under each bud is a pair of horizontal, whitish, stipular thorns, the length of the leaves: the leaves are petioled, conjugate, or one-paired, with pinnate, six-paired leaflets: the common petiole terminated above by a gland, beneath by a prickle: the leaflets oblong-linear, blunt, at equal distances, the lowest smaller: the legume oval, a hand in length and half as much in breadth, compressed, with large scattered seeds. It is a native of the Cape.

The twenty-sixth climbs to the tops of the tallest trees, to the height of one hundred and fifty feet, frequently overspreading many of the neighbouring branches, and forming large arbours: the withs are slender, but tough and flexile, striated, stiff, and smooth: common petioles long, opposite, thickened at the base, round, very smooth, terminating in a tendril, by which the branches are supported: the pinnas four-paired, petioled, oblong, blunt at top, emarginate, nerved, smooth on both sides, shining: the glands none: the tendril long, upright, bifid at the end: the spikes axillary, erect, very long, many-flowered: the flowers approximating, subsessile, small: most of them are abortive; and according to Browne, the female plants throw out their flowers separate, and are succeeded by so many pods. It is a native of both Indies, and in the West Indies is called *Cocoon.*

The twenty-seventh species is in height three or four feet: the branches alternate, upright, angular, with a very tough smooth bark: the leaves of the young seedlings in pairs and pinnated, with oval leaflets: but when the stem rises, the common footstalks of its leaves become dilated, the leaflets cease to appear, and the whole shrub is furnished only with such dilated naked footstalks, which are to all intents and purposes leaves: they are alternate, vertical, smooth, firm and glaucous: the stipules none: on their upper edge near the base a small concave gland: the racemes are axillary, solitary, erect, of about six alternate heads, each having three or four small white flowers: the pod linear, pointed, zigzag, brown, with a very thick margin: the seeds about six, oblong: the flowers on the young branches are very numerous, and fragrant, like those of Spiræa Ulmaria. It is a native of New South Wales.

It produces ripe pods, and perfect seeds in the stove, but in the green-house the flowers go off without any tendency to produce fruit. It is a shrub of quick growth, and which blows very readily.

According to Mr. Curtis, the foliage is usually edged with red.

In the twenty-eighth the branches are most acutely triangular, and much compressed: their edges bright red: the leaves alternate, four or five inches long, with a rib and margin like the last: the flowers in axillary racemes, yellowish white, fragrant: the petals four: stamens numerous: the young capsules smooth and glaucous. It is a native of New South Wales.

Culture.—They are all capable of being increased by seed, and some of the sensitive kinds by layers and cuttings, but the first is by much the best method.

The seed, procured from the nurseries or seed-shops, should be sown in pots of light rich mould early in the spring, covering it in with fine earth a quarter of an inch deep, and plunging the pots in the hot-bed; if in a common hot-bed under frames and glasses, managing them nearly in the manner of tender annuals, and when in a bark-bed in the stove, little trouble is required. But moderate sprinklings of water should be given; and when the plants are two or three inches high, they should be planted out singly into small pots, preserving the earth to their roots, replunging them in the hot-bed, &c. giving water and occasional shade till they are well rooted, repeating the waterings frequently. The plants should afterwards be continued either in the hot-bed under glasses, or plunged in the bark-bed of the stove, to facilitate their growth, preserve them in vigour, and increase the sensibility of the Sensitive kinds; admitting fresh air pretty freely.

The perennial sorts, both shrubby and herbaceous, must be kept in the stove all winter, and principally the year round.

And they must be frequently removed into larger pots to prevent the roots from getting through the pots, which they are apt to do, and by that means are often destroyed.

The Acacia kinds are the most tender, requiring the stove almost constantly, except a little in the heat of summer, when they must be placed in a warm situation.

They should always have a bark hot-bed, and be put in very small pots filled with sandy mould, the heat of the stove being kept up to above temperate: as the leaves of some of them are shed, they have often the appearance of being dried when that is not the case.

Where there is not the convenience of a stove, those who are curious to have the plants, may have them in summer, by the aid of a common dung or tan-bark hot-bed under frames and glasses, though not in winter; by raising some of the annual, or any of the other kinds, by seed in spring, in a hot-bed under a frame, &c. keeping up the heat of the bed until the middle of June, and continuing the plants always under the frame, raising one end of the lights a little, occasionally, in warm days to admit fresh air; and as they rise in height, raise the frame at bottom, to allow them full room to grow. About Midsummer, or soon after, some of the low spreading kinds may likewise be turned out with balls, or plunged in their pots into a warm sunny border, and covered with large hand-glasses, which may be lifted off occasionally just to view the plants. By these methods the plants may be preserved through the summer in their sensitive quality, though not equal in perfection to those in stoves; nor can they be preserved alive in winter out of the stove.

The shrubby kinds that afford spreading branches may be layed any time in summer, in pots plunged in the bark-bed, where they then take root, and are ready to pot off singly in the autumn season.

The Sensitive and Humble sorts often branch out profusely, so as to furnish plenty of young shoots for cuttings, which should be planted in pots in the summer season, plunging them in the bark-bed, where they often readily take root, and form good plants.

These modes should, however, only be practised when seed cannot be procured.

The general culture of all the species is afterwards to keep them always in pots placed in the stove, being plunged occasionally in the bark-bed, especially the Spreading Sensitive kinds, frequent waterings being given in summer and winter, but considerably the most in the summer season: shifting them into larger pots as they increase in growth. And although most of the sorts will live in the open air in the heat of summer, it is the best practice to expose them but sparingly.

The fourth and fifth sorts are held in high estimation on account of the singular sensibility lodged in their leaves; which, in consequence of being touched or shaken, either by the hand, a stick, or the least wind blowing upon them, the wings of the leaves suddenly close, and the foot-stalks fall down.

The periods of time which the leaves, &c. require to recover themselves, after falling from any irritation, are according to the vigour of the plant, the hour of the day, the sereneness of the atmosphere, and the temperature of the heat of the stove, &c. being often from ten or fifteen minutes to an hour or more.

The plants also every evening naturally contract themselves, and expand again in the morning. They are all ornamental and curious.

3. MONARDA DIDYMA.

SCARLET MONARDA.

This genus contains plants of the fibrous-rooted herbaceou flowery biennial and perennial kinds.

It belongs to the class and order *Diandria Monogynia*, and ranks in the natural order of *Verticillatæ*.

The characters are: that the calyx is a one-leafed tubular perianthium, cylindric, striated, with a five-toothed equal mouth, permanent: the corolla unequal: tube cylindric, longer than the calyx: border ringent: upper lip straight, narrow, linear, entire; lower lip reflex, broader, trifid; middle segment longer, narrower, emarginate; lateral blunt: the stamina have two bristle-shaped filaments, the length of the upper lip, in which they are involved: anthers compressed, truncate at top, convex below, erect: the pistillum is a four-cleft germ: style filiform, involved with the stamens: stigma bifid, acute: there is no pericarpium: calyx containing the seeds at the bottom: the seeds four, roundish.

The species cultivated are: 1. *M. fistulosa*, Purple Monarda: 2. *M. oblongata*, Long-leafed Monarda; 3. *M. didyma*, Scarlet Monarda, or Oswego Tea; 4. *M. rugosa*, White Monarda; 5. *M. punctata*, Spotted Monarda.

The first has a perennial root, composed of many strong fibres, and spreading far on every side: the stems, near three feet high, are hairy and obtuse-angled; they send out two or four small side branches towards the top: the leaves oblong, broad at the base, but terminating in acute points, hairy, a little indented on their edges, on short hairy foot-stalks: the stem and branches terminating by heads of purple flowers, which have a long involucre, composed of five acute-pointed leaves. It is a native of Canada, flowering from June to August.

The second species differs from the first, in having the leaves ovate at the base, and a little attenuated, and more villose underneath. It is a native of North America, flowering from July to September.

The third has a perennial root the stems about two feet high, smooth, acute-angled: the leaves indented on the edges, on very short foot-stalks; when bruised they emit a very grateful refreshing odour: towards the top of the plant come out two or four small side branches, with smaller leaves of the same shape: the flowers are produced in large heads or whorls at the top of the stalk, and there is often a smaller whorl at a joint below the head: and out of the head arises a naked peduncle, sustaining a small head or whorl: the flowers are of a bright red colour. They come out in July; and in a moist season, or when the plants grow in a moist soil, they continue till the middle or end of September. It is a native of North America.

The fourth species resembles the following, but the leaves are longer, smooth, wrinkled a little like those of Sage, and the flowers white. It is a native of North America, flowering from July to September.

The fifth has stems about two feet high, branching out from the bottom to the top: the leaves lanceolate, coming out in clusters at each joint, where there are two larger leaves, and several smaller ones on each side; the larger leaves are two inches and a half long, three quarters of an inch broad, and slightly indented on their edges: towards the upper part of the stem the flowers come out in large whorls, with an involucre to each whorl composed of ten or twelve small lanceolate leaves, of a purplish red colour on their upper side (four larger, and four smaller, besides the leaves of the whorls): the flowers are pretty large, of a dirty yellow colour spotted with purple. It is a biennial plant; and a native of Maryland and Virginia, flowering here from June to October.

Culture. -All these plants may be increased by parting the roots, and some of them by slips and cuttings as well as seeds.

As the first sort does not increase fast by the roots, the seeds may be sown in the autumn on a bed of good earth, and in the following summer the plants be removed into nursery rows half a foot apart, in a rather shady situation, and in the beginning of the following autumn set out where they are to remain and flower. They succeed best in a soft loamy soil not too much exposed.

The roots should be divided either in the autumn or very early in the spring; but the former is the better, being afterwards either planted out in rows to remain till they are strong, or, when strong, at once to where they are to remain.

Strong slips or cuttings of the branches may be taken off in the beginning of summer, and planted out in a shady border, due shade and water being given till well rooted, when in the autumn they may be removed to where they are to remain.

The third sort succeeds best in a light soil, in an eastern situation.

They all afford ornament in the borders and clumps of pleasure-grounds.

PLATE XXXVII.

1. NIGELLA DAMASCENA.

LOVE IN A MIST. DEVIL IN A BUSH.

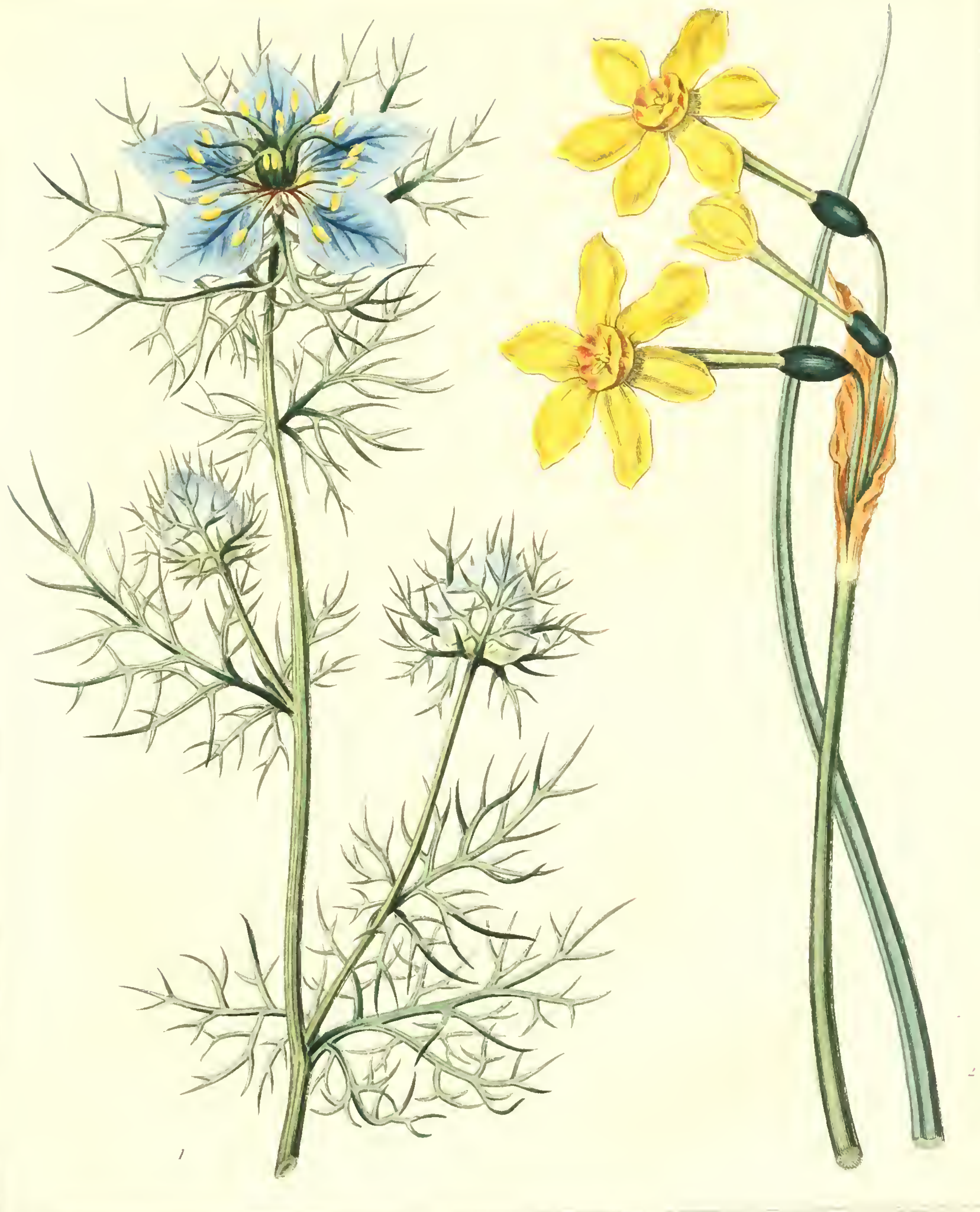
This genus contains plants of the hardy herbaceous flowering annual kind.

It belongs to the class and order *Polyandria Pentagynia*, and ranks in the natural order of *Multisiliquæ*.

The characters are: that there is no calyx: the corolla has five petals, ovate, flat, blunt, spreading, more contracted at the base: the nectaries eight, placed in a ring, very short; each two-lipped; outer lip larger, lower, bifid, flat, convex, marked with two dots; inner lip shorter, narrower, from ovate ending in a line: the stamina have numerous awl-shaped filaments, shorter than the petals. Anthers compressed, blunt, erect: the pistillum has several germs (five to ten), oblong, convex, compressed; erect, ending in styles which are awl-shaped, angular, very long, but revolute, permanent: stigmas longitudinal, adnate: the pericarpium capsules as many, oblong, compressed, acuminate, connected on the inside by the suture, gaping on the inside at top: the seeds very many, angular, and rugged.

The species cultivated are: 1. *N. damascenu*, Common Fennel-flower; 2. *N. sativa*, Small Fennel-flower; 3. *N. arvensis*, Field Fennel-flower; 4. *N. Hispanica*, Spanish Fennel-flower; 5. *N. orientalis*, Yellow Fennel-flower.

The first rises with an upright branching stalk a foot and a half high: the leaves much longer and finer than those of the third: the flowers are large, pale blue, with a five-leaved involucre under each, longer than the flower; they are succeded by larger swelling seed-



[illegible] del. [illegible] Edwards   London Publish'd [illegible] by G. K[illegible] Fleet Street

1 *Nigella Damascena*
Love in a mist Devil in a bush

2 *Narcissus Jonquilla*
Jonquill

vessels, with five horns at the top. It is a native of the South of Europe, flowering from June to September.

From the fine cut leaves about the flower, it has the names of *Fennel-flower*, *Devil-in-a-bush,* and *Love-in-a-mist*; but the first is become obsolete.

There is a variety with single white flowers, and another with double flowers, which is frequently cultivated in gardens with other annuals for ornament.

The second species rises to the same height as the preceding: the leaves are not so finely cut, and are a little hairy: at the top of each stalk is one flower, composed of five white petals, which are slightly cut at their end into three points; these are succeeded by oblong swelling seed-vessels with five horns at the top, filled with small pale-coloured seeds. It is a native of Candia and Egypt, flowering from June to September.

The third rises with slender stalks near a foot high, either single or branching out at the bottom, and having a few very fine-cut leaves, somewhat like those of Dill. Each branch is terminated by one star-pointed flower, of a blue colour, without any leafy involucre: they are succeeded by capsules, having five short horns, inclining different ways at the top, and are filled with rough black seeds. It is a native of Germany, &c. flowering from June to September.

There is a variety with white flowers, and another with double flowers.

The fourth species rises near a foot and half high; the lower leaves are finely cut: but those on the stalks are cut into broader segments: the flowers are larger than those of the other species, and of a fine blue colour, with green veins at the back: the nectaries of a sea-green colour: the pistils are of equal length with the petals; they with the stamens are of a deep purple or puce colour: the capsule has five horns, and is of a firmer texture than any of the other. It grows naturally in Spain and the South of France, flowering from June to September.

There is a variety with double flowers.

The fifth rises with a branching stalk a foot and half high; with pretty long leaves, finely divided: the flowers are produced at the end of the branches: the petals are yellowish; at the base of these are placed eight nectaries, between which arise a great number of stamens. with an unequal number of germs, from five to eight or nine, oblong and compressed: the capsules are joined together on their inner side, terminate in horns, open longitudinally, and contain many thin compressed seeds, having borders round them. It is a native of Syria, flowering from July to September.

Culture.—They are all increased by sowing the seeds on light earth where the plants are to remain, as they seldom succeed well when transplanted in patches at proper distances; and when the plants are come up, they should be thinned, leaving only three or four in each patch, keeping them afterwards clear from weeds.

The best season for sowing is March; but if some be sown in August, soon after they become ripe, on a dry soil and in a warm situation, they will abide the winter, and flower strong the succeeding year. By sowing the seeds at different times, they may be continued in beauty most part of the summer season.

As they are all annual plants, they require to be raised every year.

The varieties with double flowers are chiefly introduced into flower gardens.

They afford ornament and variety among other annuals in the clumps and borders.

2. NARCISSUS JONQUILLA.

JONQUIL.

This genus contains plants of the bulbous-rooted perennial flowering kind.

It belongs to the class and order *Hexandria Monogynia*, and ranks in the natural order of *Spathaceæ*.

The characters are: that the calyx is an oblong spathe, obtuse, compressed, opening on the flat side, shrivelling: the corolla has six ovate, acuminate petals, flat, equal, inserted into the tube of the nectary externally above the base: nectary one-leafed, cylindric-funnel-form, coloured on the border: the stamina have six awl-shaped filaments, fixed to the tube of the nectary, shorter than the nectary: anthers oblongish: the pistillum is a roundish germ, obtusely three-sided, inferior: style filiform, longer than the stamens: stigma bifid. concave, obtuse: the pericarpium is a roundish capsule, obtusely three-cornered, three-celled, three-valved: the seeds are many, globular, and appendicled.

The species cultivated are: 1. *N. pseudo-narcissus*, Common Daffodil; 2. *N. poeticus*, Poetic, or White Narcissus; 3. *N. biflorus*, Two-flowered Narcissus, or Pale Daffodil; 4. *N. bicolor*, Two-coloured Narcissus; 5. *N. minor*, Least Daffodil: 6. *N. triandrus*, Rush-leaved Narcissus, or Reflexed Daffodil; 7. *N. orientalis*, Oriental Narcissus: 8. *N. Bulbodocium*, Hoop-Petticoat Narcissus: 9. *N. tazetta*, Polyanthus Narcissus; 10. *N. serotinus*, Late-flowering Narcissus; 11. *N. odorus*, Sweet-scented Narcissus, or Great Jonquil; 12. *N. calathinus*, Calathine Yellow Narcissus; 13. *N. jonquilla*, Common Jonquil.

The first has a large bulbous root, from which come out five or six flat leaves, about a foot long, and an inch broad, of a grayish colour, and a little hollow in the middle like the keel of a boat: the stalk rises a foot and half high, having two sharp longitudinal angles: at the top comes out one nodding flower, inclosed in a thin spathe: the corolla is of one petal, being connected at the base, but cut almost to the bottom into six spreading parts; in the middle is a bell-shaped nectary, called by gardeners the cup, which is equal in length to the petal, and stands erect: the petal is of a pale brimstone or straw colour, and the nectary is of a full yellow: the seeds are roundish, black. It is a native of many parts of Europe, flowering in March.

There are varieties with white petals and a pale yellow cup, with yellow petals and a golden cup, with a double flower; with three or four cups within each other; Tradescant's large double; long-tubed flowered; short-tubed; dwarf-stalked; and the peerless Daffodil.

Many other varieties have likewise been noticed by writers.

The second species has a smaller and rounder bulb than the first: the leaves are longer, narrower, and flatter: the stalk or scape does not rise higher than the leaves, which are of a gray colour: at the top of the stalk comes out one flower from the spathe, nodding on one side: the corolla snow white, spreading open flat, the petals rounded at the points: the nectary or cup in the centre is very short, and fringed on the border with a bright purple circle: the flowers have an agreeable odour, appear in May, and seldom produce seeds. It is a native of Italy, &c. flowering in April.

There are varieties with double white flowers, with purple-cupped flowers, and with yellow-cupped flowers.

The third usually produces two flowers: it frequently occurs, however, with one, more rarely with three; in a high state of culture it probably may be found with more. When it has only one flower, it may easily be mistaken for one of the varieties of the second sort, but may be distinguished from it by the petals being of a yellowish hue, or rather a pale cream colour; the nectary wholly yellow, not having the orange or crimson rim, and by its flowering at least three weeks earlier; the top also of the flowering stem very soon after it emerges from the ground bends down and becomes elbowed; whereas in that it continues upright till within a short time of the flower's expanding. It is a native of several parts of Europe, flowering in May.

There are two or three varieties, as with sulphur-coloured flowers, and with white reflexed petals, with gold-coloured borders.

The fourth species resembles the first; but the petals are white, the nectary is dark yellow and larger, with a spreading, waved, notched border. Gouan thinks it is easily distinguished by its leaves, which are scarcely a palm in length and half an inch in breadth; by its large flower, with cordate-ovate petals, imbricate at the base, and sulphur-coloured, and by the nectary having a reflex mouth, twelve-cleft or thereabouts, the lobes also being toothed and curled: the scape is the length of the leaves, or a little shorter, and thick. It is a native of the South of Europe, flowering in April and May.

There is a large variety, which approaches in its general appearance very near to the first sort; but it is a much taller plant, and has its leaves more twisted, as well as more glaucous: the flower, but especially the nectary, is much larger, and the petals are more spreading. It is of a fine deep yellow colour, having sub-varieties with double flowers, and is a native of Spain, flowering in April. It is sometimes known by the title of Great Yellow *Spanish-Bastard Daffodil.*

The fifth is nearly related to the first sort, but is three times smaller in all its parts: the scape is scarcely striated: the spathe is greenish: the flowers more nodding: the petals distinct at the base, lanceolate, straight, not oblique or ovate: the margin of the nectary six-cleft, waved, curled. But though the flowers are not so large as those of the other species, when the roots are planted in a cluster, they make a very pretty show, and have this advantage, that they flower somewhat earlier than any of the others. It is a native of Spain.

The sixth is of the same size with the second, but the leaves are narrower by half and channelled: the spathe one-flowered: the whole corolla snow-white: the petals ovate-oblong: the nectary bell-shaped, shorter by half than the corolla, with the margin straight, and unequally crenulate: the stamens three, seldom six: the anthers dark yellow, shorter than the nectary. In nurseries the flowers are of a pale yellow, having two and sometimes three flowers from a spathe. It is a native of Portugal.

There are varieties with cup and petals wholly of a gold colour; with yellow, with a white cup; and with white, with a yellow cup.

The seventh species is broad-leaved, having the appearance of the ninth sort: the corolla is white: the nectary erect, half or one-third of the length of the petals, trifid, yellow, with the lobes emarginate. It is a native of the Levant, flowering in May.

There are several varieties.

The eighth has small bulbs: the leaves very narrow, having some resemblance to those of the Rush, but a little compressed, with a longitudinal furrow on one side; they are seldom more than eight or nine inches long: the flower-stalk slender, taper, about six inches long: petal scarce half an inch long, cut into six acute segments: the nectary or cup is more than two inches long, very broad at the brim, lessening gradually to the base, formed somewhat like the old farthingale or bell-hoop petticoat worn by the ladies. It is a native of Portugal, flowering in April or May.

The ninth species has a large, roundish bulb: the leaves three or four, long, narrow, plane: the scape or flower-stalk upright, broadish, angular, concave, from ten or twelve to eighteen inches in height: the flowers six or seven to ten from one spathe, very fragrant, clustered, white or yellow. It is a native of Spain and Portugal, &c., flowering in February and March.

There are a great many varieties: the principal of which are; with yellow petals, with orange, yellow, or sulphur-coloured cups or nectaries; with white petals, with orange, yellow, or sulphur-coloured cups or nectaries; with white petals, with white cups or nectaries; and with double flowers of the different varieties.

The flower catalogues contain about a hundred sub-varieties under these heads. It may be observed, that " the varieties with white petals and white cups are not so much esteemed as the others; there are, however, two or three with large bunches of small white flowers, which are valuable for their agreeable odour, and for flowering later than most of the others. There is also one with very double flowers, the outer petals white, those in the middle some white, others orange-coloured," which " has a very agreeable scent, flowers early, and is generally called the *Cyprus Narcissus*," and is the most beautiful of all the varieties when blown in glasses in rooms or other places.

The tenth has a small bulb: the leaves few, narrow: the stalk jointed, nine inches high: the corolla white, cut into six narrow segments: the cup yellow. It flowers late in the autumn, and is a native of Spain, Italy, and Barbary.

The eleventh species has the flower deep yellow, three times as large as that of the ninth, sometimes one only from a spathe, but frequently more: the nectary not fringed, but divided at the mouth into six blunt lobes. It possesses more fragrance than many of the others. It is a native of the South of Europe, flowering in April and May.

It varies with double flowers.

The twelfth resembles the ninth very much, but the petals are a little larger and sharper; the nectary is the same length with the petal; the leaves two or three, a foot or more in length: the stem is slender, strong, a foot in length: the flowers two or three from a spathe, very elegant, large and loose: the petals yellow: the cup half an inch long, sinuated at the edge, of a deeper yellow colour. It flowers in April, and is a native of the southern parts of Europe and of the Levant.

The thirteenth is named from the narrowness of its leaves, like those of Rushes; there are two or three of them usually on a plant, and they are angular, fleshy, and almost round: the scape is round, hollow, producing at top from three to five flowers from a spathe, sometimes no more than two, very fragrant petals orbiculate or mucronate, both they and the cup yellow: the bulb small, white, covered with dark membranes. It is a native of Spain, flowering in April and May.

It varies with double flowers.

Culture.—All these different species and varieties may be increased with facility, by planting the off-set bulbs from the roots; and by sowing the seed in order to procure new varieties, which is chiefly practised for the fine sorts of Polyanthus Narcissus.

For this last purpose the seed should be carefully saved from the best and most curious plants after being perfectly ripened.

The seed should be sown soon after it becomes ripe, as about the beginning of August, in shallow boxes or flat pans perforated with holes in the bottoms, and filled with fresh light sandy earth, being covered about a quarter of an inch deep with fine sifted mould, and placed in such situations as are only exposed to the morning sun, till the beginning of winter, when they should be removed to have the full sun, and be sheltered from severe weather. In the spring, when the plants appear, they should be occasionally watered in dry weather, and be screened from the mid-day heat, removing them into cooler situations as the warm season advances, keeping them free from all sorts of weeds. Towards the latter end of the summer, when their stems decay, the surface mould of the boxes or pans should be stirred or wholly removed, and some fresh mould sifted over the plants, being careful not to disturb the roots, and keeping them rather dry in a shaded place.

They should have the same management annually, till the period of their leaves decaying in the third summer, when the bulbs should be taken up, and the largest separated and planted out on raised beds of light fine mould, in rows six inches apart, and three or four distant in them, having the depth of two or three inches. The smaller bulbs may be covered in on another bed with fine mould, to remain till of sufficient size to be planted out as above.

They should afterwards be kept clean; and when they show flowers so as to ascertain their properties, they may be removed, and managed in the manner directed below.

The off-set bulbs of the old plants, especially the double sorts, should be separated from the roots annually, or at furthest every two or three years, in the latter part of the summer, when their leaves and stems decay, planting their larger bulbs out at different times, from the end of August to the beginning of November, in order to afford variety; but the earlier they are planted the stronger they blow. When left out of the ground till February, or later, they mostly appear weak.

They succeed best where the soil is of a light, dry, fresh, hazel, loamy quality, and the aspect south-easterly; as where inclined to moisture they are very apt to be destroyed.

They afterwards only require to be kept free from weeds, and to have the ground stirred above them in the autumn.

The small bulbs may be planted out in rows in nursery-beds to increase for being planted out in the same manner.

When these roots are planted in the open borders or other places, in assemblage with other bulbous flowers, they should be deposited in little patches, about three or four roots in each, putting them in with a blunt dibble, or holing them in with a garden-trowel, three or four inches deep; in which mode they display their flowers more conspicuously than when planted singly.

Where a large quantity are planted out alone in beds in order to exhibit a full bloom, as often practised with the fine *Polyanthus-Narcissus*, Jonquils, &c. the beds should be four feet wide, with foot-and-half or two-feet wide alleys between them; in these beds the roots should be planted in rows length-ways, nine inches asunder, either with a blunt dibble or with a hoe, three or four inches deep, and six distant in each row, covering them evenly with the earth, and raking the surface smooth.

In order to blow the *Polyanthus-Narcissus* and Jonquil in the highest perfection, curious florists often bestow particular care in their culture: some, preparing beds of compost, as for the fine Hyacinths, &c. managing them in the same manner. But they succeed well in beds of light dry mould.

Where the bulbs of this sort are intended for sale, they should be lifted at furthest every two years, to prevent their becoming flattened by pressure, and of course less valuable.

The bulbs may be retained out of the ground two or three months where it is necessary; but it is better to replant them as above.

Culture in Glasses.—It is sometimes the practice to cultivate the Polyanthus Narcissus and some of the large Jonquil kind in glasses in rooms, in order to blow in the winter or early spring season. For this purpose dry firm bulbs should be chosen, and one placed in each single glass or bottle provided for the purpose, any time from October till the spring, being then filled up to the roots of the bulbs with soft water, and deposited in a light warm place: in this method the plants soon begin to grow, and send forth flower-stems, affording good flowers, which have a very ornamental appearance.

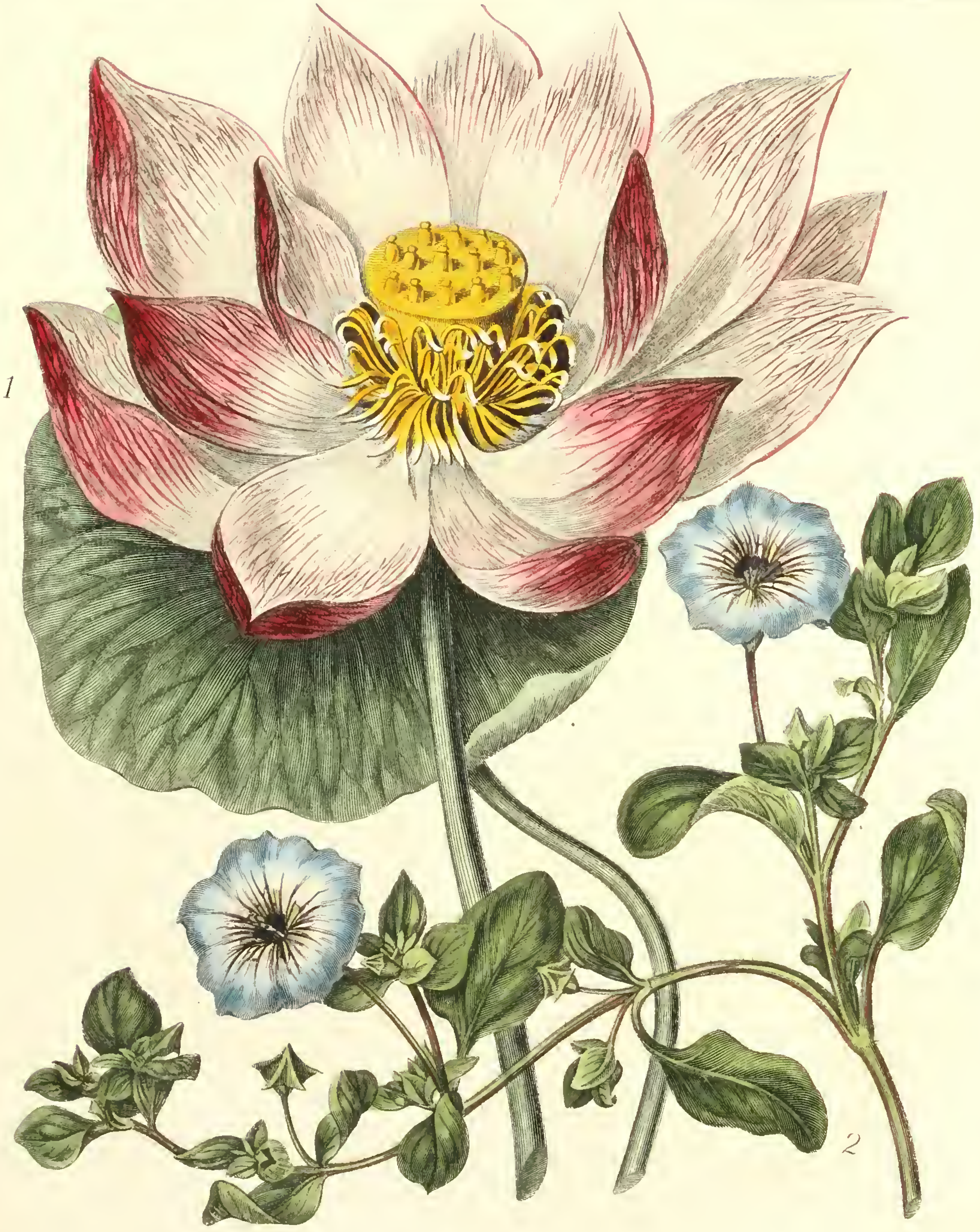
The principal circumstances to be regarded in this management are, those of keeping the glasses well supplied with fresh portions of water, so as constantly to be up to the lower part of the roots, and changing the whole, so as to keep it always in a pure state.

They may likewise be raised in pots filled with light sandy mould, and placed in the same situations.

Also in hot-houses, they may be made to blow early, when kept either in pots or glasses.

When planted out in the manner mentioned above, in the borders, clumps, and other parts of pleasure-grounds, they are most of them highly ornamental, producing much variety in the early spring months.

All the different principal sorts may be procured from the seedsmen in London, who import them for sale from Holland, where they are raised in large quantities.



Painted by Syd Edwards

London Publiſhed Apr 1 1800 by G Kearsley Fleet Street

Engraved by F Sanſom

1 *Nelumbium speciosum*
Chinese Water Lily

2 *Nolana prostrata*
Trailing Nolana

PLATE XXXVIII.

1. NELUMBIUM SPECIOSUM.

CHINESE WATER-LILY.

See NYMPHŒA.

2. NOLANA PROSTRATA.

TRAILING NOLANA.

This genus contains a plant of the herbaceous trailing annual kind.

It belongs to the class and order *Pentandria Monogynia,* and ranks in the natural order of *Asperifoliæ*, or *Luridæ*.

The characters are: that the calyx is a one-leafed perianthium, turbinate at the base, five-parted, five-cornered: segments cordate, acute, permanent: the corolla is one-petalled, bell-shaped, plaited, spreading, somewhat five-lobed, twice as large as the calyx: the stamina have five awl-shaped filaments, erect, equal, shorter than the corolla: anthers sagittate: the pistillum is as five roundish germs: style among the germs, cylindric, straight, the length of the stamens: stigma capitate: the pericarpium properly none: (drupes five, decumbent, three or five-celled:) the seeds five, with a succulent rind, roundish, with the inner base naked, immersed in the receptacle, two-celled and four-celled (solitary).

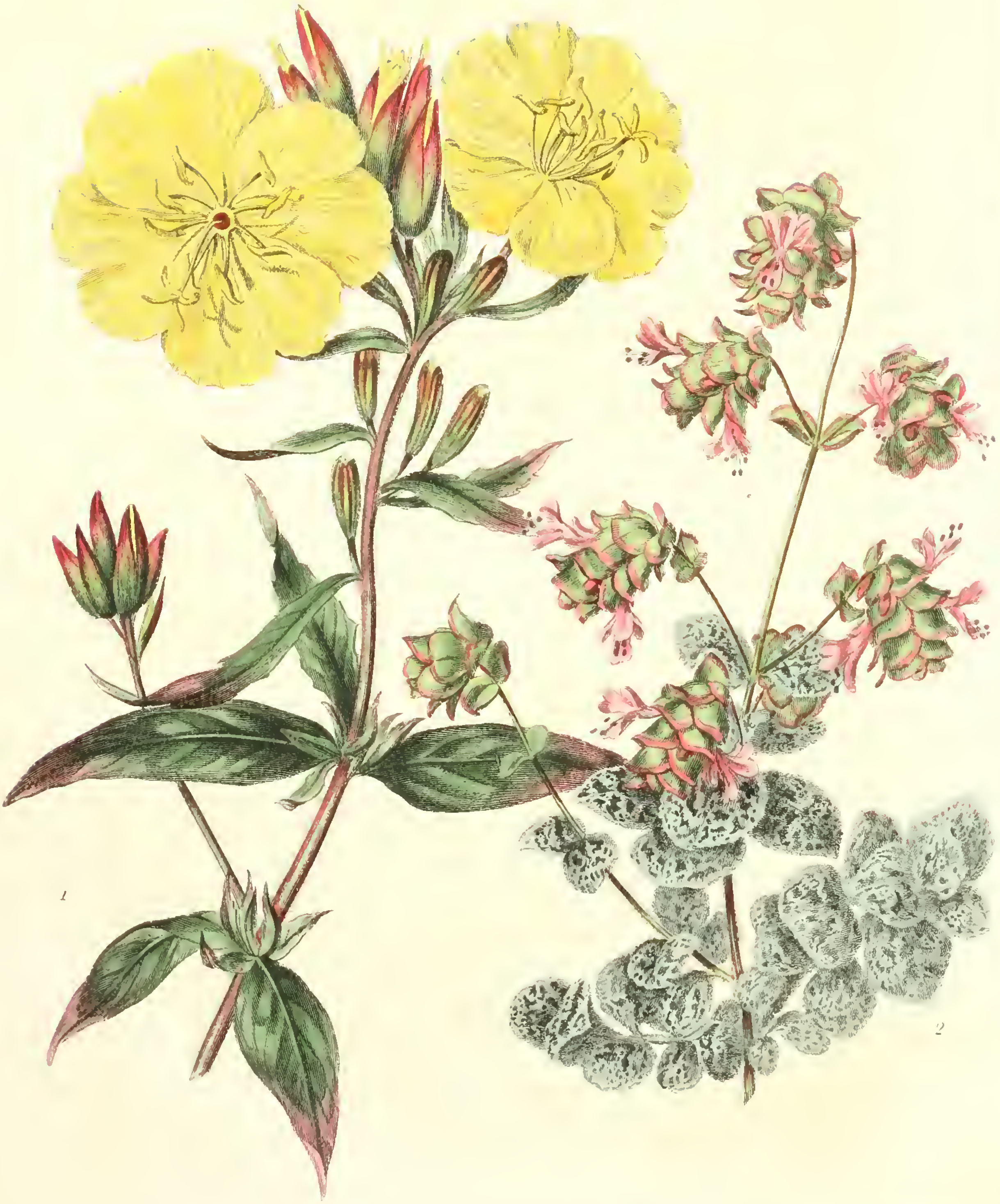
The species is *N. prostrata,* Trailing Nolana.

It has an annual root, simple, filiform, often three feet long, blackish: the stem a foot long, herbaceous, prostrate, roundish, very smooth, with white dots scattered over it the branches alternate, the lower ones the length of the stalk: the leaves alternate, two together, reflex, rhomb-ovate, quite entire, blunt, somewhat fleshy, an inch long, somewhat papulose, even, flat, veined, unequal, alternately larger and smaller. According to Miller they come out single at some joints, by pairs at others, and frequently three or four at the upper joints: the petioles ancipital, scarcely shorter than the leaves, smooth, those belonging to the upper leaves vaguely ciliate: the peduncles lateral, solitary, spreading a little, an inch long, one-flowered, round, thicker at top, hairy: the flowers inferior. It is a native of Java.

Culture.—These plants may be raised by sowing the seeds on a hot-bed in March. When the plants are fit to remove, they should be planted out singly into small pots filled with light earth, plunging them into a fresh hot-bed to bring them forward. When their flowers open in the summer, as July, they should have a large share of air admitted when the weather is warm, to prevent their falling away without producing seeds. Under this management the plants often continue flowering till the early frosts destroy them, and ripe seeds are produced in the beginning of the autumn.

They afford variety among other tender annuals.

Pl.39



Painted by Syd. Edwards London Published Aug 1st 1805 by G Kearsley Fleet Street En [illegible]

1 *Oenothera fruticosa*
Shrubby oenothera

2 *Origanum dictamnus*
Dittany of Crete

PLATE XXXIX.

1. OENOTHERA FRUTICOSA.

SHRUBBY OENOTHERA.

This genus contains plants of the herbaceous, biennial, perennial and under shrubby perennial kinds.

It belongs to the class and order *Octandria Monogynia*, and ranks in the natural order of *Calycanthemæ*.

The characters are: that the calyx is a one-leafed, superior, deciduous perianthium: tube cylindrical, erect, long, deciduous: border four-cleft: the segments oblong, acute, bent down: the corolla has four petals, obcordate, flat, inserted into the interstices of the calyx, and the same length with the divisions of the calyx: the stamina have eight awl-shaped filaments, curved inwards, inserted into the throat of the calyx, shorter than the corolla: anthers oblong, incumbent: the pistillum is a cylindrical germ, inferior: style filiform, the length of the stamens: stigma four-cleft, thick, blunt, reflex: the pericarpium is a cylindrical capsule, four-cornered, four-celled, four-valved, with contrary partitions: the seeds very many, angular, naked: the receptacle columnar, free, four-cornered, with the angles contiguous to the margin of the partitions.

The species cultivated are: 1. *O. biennis*, Broad-leaved Tree-Primrose; 2. *O. longiflora*, Long-flowered Tree-Primrose; 3. *O. mollissima*, Soft Tree-Primrose; 4. *O. fruticosa*, Shrubby Tree-Primrose; 5. *O. pumila*, Dwarf Tree-Primrose.

The first has a biennial fusiform fibrous root, yellowish on the outside, white within: from this, the first year, arise many obtuse leaves, which spread flat on the ground; and from among which, the second year, the stems come out, three or four feet high, upright, of a pale green colour, the thickness of a finger, not hollow but pithy, angular, slightly pubescent and rugged, tinged with purple, especially towards the bottom, branched alternately almost from the ground: the root-leaves run down into a three-sided petiole an inch in length: the stem-leaves sessile, bright lightish green, pubescent on both sides, waved a little about the edge, and having a few small teeth near the base: they are from five to seven inches in length and two inches in breadth, having a considerable midrib running the whole length, very wide and tinged with purple towards the base, at the back very prominent, with white nerves springing from it, and curved towards the point: the flowers are produced all along the stalks on axillary branches, and in a terminating spike: the leaves on the former are similar to the stem-leaves, but much smaller, being not more than two inches long, and little more than half an inch in breadth: the flowers are solitary, each being separated by a leaflet or bracte, wider in proportion at the base than the proper leaves, and drawn more to a point, diminishing gradually towards the top of the spike, till they become linear, scarcely half an inch in length, and a line in breadth.

It is observed that the flowers usually open between six and seven o'clock in the evening, whence the plant is called Evening or Night-Primrose: the uppermost flowers come out first in June, the stalk keeping continually advancing in height, and there is a constant succession of flowers till late in autumn. It is a native of North America. The roots are said to be eaten in some countries in the spring season.

The second species has also a biennial root: the root-leaves are numerous, broad-lanceolate, toothletted, pubescent, with a white rib, obliquely nerved: the stems usually five, springing out below the root-leaves, quite simple, ascending, rough-haired, green, with long spreading white hairs: the central stem grows up later: the stem-leaves are ovate-oblong, sessile, like the root-leaves: the flowers axillary from the upper leaves, with the germ and calyx hairy. It is remarked by Curtis, that luxuriant specimens exceed five feet in height, that the flowers are uncommonly large and showy, and continue blowing from July to October. It is a native of Buenos Ayres.

The third has a shrubby stalk more than two feet high, hairy, with narrow-lanceolate sessile leaves, a little waved on their edges, and ending in acute points: the flowers are axillary like the other sorts, at first pale yellow, but as they decay changing to an orange colour, smaller than those of the first sort: the seed-vessels slender, taper, hairy. It is also a biennial plant, and a native of Buenos Ayres, flowering from June to October.

The fourth species is a perennial, but altogether herbaceous, at least here, and therefore improperly named *fruticosa:* the flowers, which are large and showy, though they open in the evening, remain expanded during most of the ensuing day: the flower-buds, germ, and stalk, are enlivened by a richness of colour which contributes to render this species one of the most ornamental and desirable. It is a native of Virginia.

The fifth has also a perennial fibrous root: the lower leaves ovate, small, close to the ground: the stalk slender, near a foot high: the leaves smaller, light green, sessile, ending in blunt points: the flowers small, bright yellow: it sends out many flowering-stems, producing blossoms from April to July, opening in the morning as well as evening. It is a native of North America.

Culture.—These plants are all capable of being raised from seeds, and some of them by parting the roots and cuttings.

The seed should be sown either in the autumn or early spring, in the first and third sorts, upon a bed or border in the open ground, thinning and watering the plants properly, and keeping them free from weeds till the following autumn, when they may be removed with balls of earth about their roots to the places where they are to remain. Or some may be set out at the time of thinning in nursery-rows, six inches apart.

They also rise without trouble from the scattering of the seeds.

In the second sort, the seed should be put into the ground in the open borders or other parts, about the latter end of March, where the plants are to remain. One plant is sufficient in a place, which should have a stick set to support its branches when they have advanced a little.

The fourth sort may be readily increased by sowing the seeds as above, and by parting the roots and cuttings of the young branches, planting them out in the open borders or other places where they are to grow in the autumn, for the first method, and the spring for the latter, giving water as there may be occasion.

In the fifth sort, the seeds should be sown in pots of light earth in the autumn, plunging them in a hot-bed frame during the winter. When the plants have attained proper growth in the spring, they should be removed into separate pots, which should be protected in the following winter under a garden frame. And some may be planted out in the open ground, where they often succeed in mild winters.

The parted roots should be planted out in the spring, either in pots or the open ground.

The plants raised from seed are in general the best, as flowering more strongly.

By cutting down the stems of the plants in the first year of their flowering before they perfect their seeds, the plants may sometimes be rendered more durable.

The first two sorts, as has been seen, are biennial, and the others perennial; the former should of course be raised annually.

They are all proper for affording ornament and variety, either in the open ground or among other potted plants. The second and third sorts are often considered as green-house plants, but they succeed well in the open ground.

2. ORIGANUM DICTAMNUS.

DITTANY OF CRETE.

This genus affords plants of the herbaceous annual and undershrubby perennial kinds.

It belongs to the class and order *Didynamia Gymnospermia*, and ranks in the natural order of *Verticillatæ*.

The characters are: that the calyx is a spiked involucre, composed of imbricate, ovate, coloured bractes: perianthium unequal, various: the corolla one-petalled, ringent: tube cylindrical, compressed: upper lip erect, flat, blunt, emarginate: lower trifid, the segments almost equal: the stamina have four filiform filaments, the length of the corolla, of which two are longer: anthers simple: the pistillum is a four-cleft germ: style filiform, inclined to the upper lip of the corolla: stigma very slightly bifid: there is no pericarpium: calyx converging, fostering the seeds at bottom: the seeds four, ovate.

The species cultivated are: 1. *O. vulgare*, Common Marjoram; 2. *O. onites*, Pot Marjoram; 3. *O. majorana*, Sweet or Knotted Marjoram; 4. *O. heracleoticum*, Winter Sweet Marjoram; 5. *O. Ægyptiacum*, Egyptian Marjoram; 6. *O. dictamnus*, Dittany of Crete or Candia.

The first has a perennial, creeping, horizontal, brown root, tufted with numerous fibres: the stem a foot, eighteen inches, or near two feet in height, upright, somewhat woody, a little downy, and often tinged with purple: the branches opposite, upright, more tender than the stalk, in other respects similar: the leaves are ovate, pointed, finely and thinly toothed, above nearly smooth, beneath downy, dotted on both sides, the edges finely ciliate, spreading: the petioles downy: axils of the leaves, in the cultivated plant, bear numerous smaller leaves. It is an aromatic and ornamental plant, growing wild in thickets and hedges, chiefly in a calcareous soil; and flowering from the end of June through the following month. It is found in most parts of Europe.

There are varieties with white flowers and light-green stalks; with purple flowers and with variegated leaves; which is sometimes cultivated in gardens under the title of *Pot Marjoram*, used in soups.

The second species has the habit of Sweet Marjoram, but it is woody: the stems woody, perennial, a foot and half high, branched, spreading, with long hairs; the leaves small, subsessile, acute, thinly serrate, tomentose on both sides; with rudiments of branches from the axils: the spikes heaped, as in the third sort, but oblong, by threes on each peduncle, the middle ones sessile, villose: the flowers are white, appearing in July. It is a native of Sicily.

The third has a biennial brown root, with many long tough fibres: the stems numerous, woody, branched, a foot and half high: the leaves are downy, entire, pale green, petioled: the flowers small, white, appearing successively between the bracteal leaves, which are numerous, and form roundish compact terminating spikes. It begins to flower in July, when it is cut for use, and called *Knotted Marjoram*, from the flowers being collected into roundish knotted close heads. It is probably a native of China.

The fourth species has a perennial root, from which arise many branching stalks a foot and half high, hairy, and inclining to a purplish colour: the leaves ovate, obtuse, hairy, greatly resembling those of Sweet Marjoram, on short foot-stalks: the flowers in spikes about two inches long, several arising together from the divisions of the stalk: the flowers are small, white, peeping out of their scaly covers. It grows naturally in Greece, &c.

It is at present commonly known by the name of *Winter Sweet Marjoram*, but was formerly called *Pot Marjoram*, being chiefly used for nosegays, as coming sooner to flower than Sweet Marjoram.

There is a variety with variegated leaves.

The fifth is a perennial plant with a low shrubby stalk, seldom rising more than a foot and half high, dividing into branches: the leaves roundish, thick, woolly, hollowed like a ladle; they are like those of common Marjoram, but of a thicker substance, and have much the same scent: the flowers are produced in roundish spikes, closely joined together at the top of the stalks, and at the end of the small side branches; they are of a pale flesh colour, peeping out of their scaly coverings. It is a native of Egypt, flowering from June to August.

The sixth species is also a perennial plant: the stalks hairy, about nine inches high, of a purplish colour, sending out small branches from the sides by pairs: the leaves round, thick, woolly, very white; the whole plant has a piercing aromatic scent, and biting taste: the flowers are collected in loose leafy heads of a purple colour, nodding, and small. It is a native of the island of Candia, flowering from June to August.

Culture.—The four first sorts may be readily increased by slips, cuttings, and parting the roots, and in the first and third sorts also by seeds.

The seed should be procured fresh from the seed-shops, and be sown in the early spring months, as March or the following month, on a bed or border of good light mould, raking it in lightly. When the plants are up and have attained a few inches in growth, they should be planted out during moist weather, in a warm dry situation, in rows ten or twelve inches distant, to remain, water being given occasionally till they become perfectly rooted. When the plants are designed for the borders or clumps, the seeds may be sown in patches where the plants are to remain.

The roots of the strongest plants may be parted so as to have some root-fibres to each in the early autumn or spring season, and be planted out in rows in the same manner as those raised from seed; having the same management afterwards till fresh rooted. The slips or cuttings of the branches should be taken off in the summer, and immediately planted out where the plants are to remain.

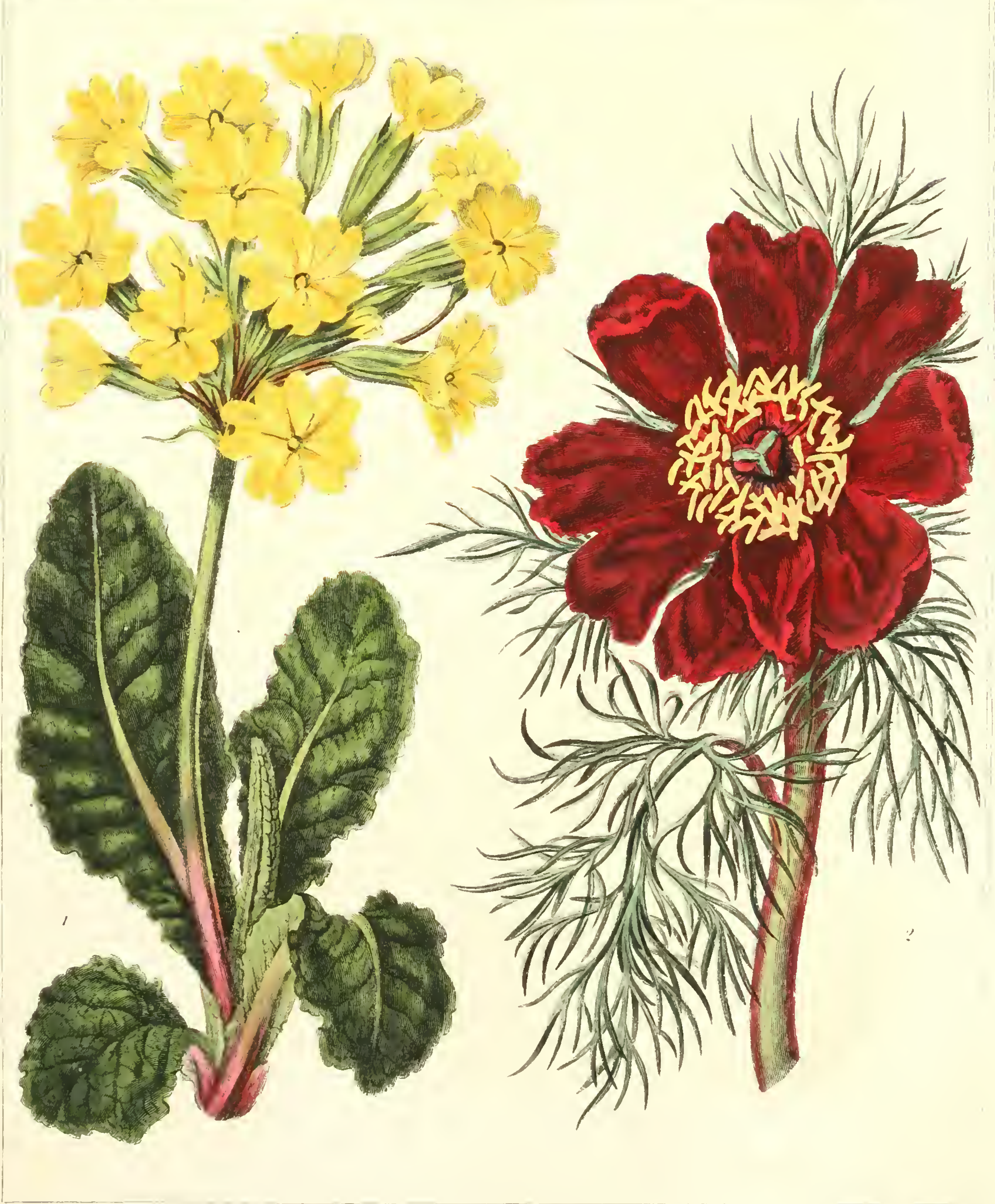
All the sorts should be afterwards kept perfectly clean from weeds during the summer season, and in the autumn have the decayed stalks cleared away, loosening the mould about the plants;

and when in beds, digging the alleys and throwing a little of the earth over the beds.

When necessary the plants may be removed into the pleasure ground, with small balls of earth about their roots, either in the autumn or early spring.

The other tender kinds may be increased by planting slips or cuttings of the young shoots, in the spring and summer months; in the former season in pots of light earth, plunging them in a mild hot-bed, but in the latter either in pots or warm shady borders; water being immediately given and occasionally repeated in small proportions, being covered down by hand-glasses in the latter case, to expedite their rooting; being removed when the plants begin to shoot at the top. In the autumn the plants may be removed into separate small pots, and afterwards treated as the more hardy plants of the green-house kind.

The three first sorts are useful as culinary plants, as well as ornamental in the borders of the pleasure ground: and the other kinds afford variety in the green-house collections.



Painted by Syd Edwards London Published June 1806 by G.Kearsley Fleet Street Engraved by F. [illegible]

1 *Primula veris*
Oxlip

2 *Paeonia tenuifolia*
Fine leaved Paeony

PLATE XL.

1. PRIMULA VERIS.

OXLIP.

This genus contains plants of the low fibrous-rooted herbaceous flowery perennial kind.

It belongs to the class and order *Pentandria Monogynia* and ranks in the natural order of *Preciæ.*

The characters are: that the calyx is a many-leaved involucre, many flowered, very small: perianthium one-leafed, tubular, five-cornered, five-toothed, acute, erect, permanent: the corolla monopetalous: tube cylindrical, the length of the calyx, terminated by a small hemispherical neck: border spreading, half-five-cleft: segments obcordate, emarginate, obtuse: throat pervious: the stamina have five very short filaments, within the neck of the corolla: anthers acuminate, erect, converging, included: the pistillum is a globular germ: style filiform, the length of the calyx: stigma globular: the pericarpium is a capsule cylindrical, almost the length of the perianth, covered, one-celled, opening with a ten-toothed top: the seeds numerous, roundish: receptacle ovate-oblong, free.

The species cultivated are: 1. *P. vulgaris*, Common Primrose; 2. *P. elatior*, Great Cowslip or Oxlip; 3. *P. officinalis*, Common Cowslip or Paigle; 4. *P. farinosa*, Bird's-eye Primrose; 5. *P. longifolia*, Long-leaved Bird's-eye Primrose; 6. *P. cortusoides*, Cortusa-leaved Primrose; 7. *P. marginata*, Silver-edged Primrose; 8. *P. Auricula*, Auricula or Bear's-ear.

The first has a perennial root, growing obliquely, appearing as if bit off at the end, beset with thick reddish scales which are the remains of past leaves, sending down numerous very long round whitish fibres; it has a singular smell, somewhat like that of anise: the leaves are obovate-oblong, about a hand's-breadth in length, nearly upright, tapering to the base, blunt, veiny, wrinkled, smooth above, hirsute beneath, rolled back at the edge when young, slightly waved, unequally notched, the midrib whitish, terminating in a foot-stalk of a reddish colour, channelled on one side and keeled on the other: the scapes or peduncles numerous, the length of the leaves, upright, round, hirsute, pale green, having awl-shaped bractes at the base, after the flowering is over bending back: the flowers upright, large, sweet-scented: the corolla is of a pale sulphur colour; each of the five clefts obcordate, and marked at the base with a spot of a much deeper yellow: the mouth has a faint rim round it. The flower of the wild Primrose is a pale brimstone colour; but in some places it is found of a purple hue.

The varieties are numerous, being partly wild and partly produced by cultivation. The principal of which are: the Common Yellow-flowered: the White: the Paper-white: the Red: the Double Yellow: the Double White: the Double Red: the Double Pink: the Double Crimson Primrose. It is a native of most parts of Europe, flowering in March and April with the Wood Anemone.

It is observed, that a fine flower of this sort should possess a graceful elegance of form, a richness of colouring, and a perfect symmetry of parts. The properties are mostly similar to those which distinguish the Auricula, in what relates to the stem or scape, the peduncles or flower-stalks, and the formation of the umbel, bunch or thyrse, vulgarly termed the *truss:* the tube of the corolla above the calyx should be short, well filled at the mouth with the anthers, and fluted termination rather above the eye: the eye should be round, of a bright clear yellow, and distinct from the ground colour: the ground colour is most admired when shaded with a light and dark rich crimson, resembling velvet, with one mark or stripe in the centre of each division of the border, bold and distinct from the edging down to the eye, where it should terminate in a fine point: the petals, technically termed the pips, should be large, quite flat, and perfectly circular, excepting the small indentures between each division, which separate it into five (sometimes six) heart-like segments: and the edging should resemble a bright gold lace, bold, clear and distinct, and so nearly of the same colour as the eye and stripes, as scarcely to be distinguished from it.

The second species has the leaves contracted towards the middle, almost as in the Cowslip: the scapes few, erect, longer than the leaves, many-flowered: the flowers umbelled, pedicelled, the outer ones generally nodding; like those of the Primrose in form and colour, but smaller. From which it is evidently distinguished by its many-flowered scape; as it is from the cowslip by the flat border of the corolla. It is found in the woods and other places in this country, flowering in April and May.

Martyn remarks that if it be a variety, it is rather of the former than the latter. And Dr. Smith rather inclines to think that it is a hybrid production, or mule from a Primrose impregnated by a Cowslip.

It varies much in the colour of the flowers, but the chief are purple-flowered, red-flowered, gold-coloured, orange-coloured, with various shades of each.

The third has a root like that of the Primrose, but smelling more powerfully of anise: the leaves obovate-oblong, contracted suddenly towards the middle, or rather ovate with the petiole winged, shorter than those of the Primrose by nearly one-half, fuller at the edge, which is somewhat folded as well as notched, stronger, of a deeper green, not running so taper at the base, covered on the under side with softer and shorter hair: the petioles smoother, whitish with scarcely any red in them: the scapes few, three or four times longer than the leaves, round, upright, pale, villose: the involucre at the base of the umbel, surrounding the peduncles, consisting of many, very small, concave, pale, acuminate leaflets: the flowers in an umbel, unequally pedicelled, hanging down, generally to one side, full yellow with an orange-coloured blotch at the base of each segment, contracted about the middle of the tube, where the stamens are inserted, paler underneath, very fragrant. It is a native of Europe, flowering in April and May.

The varieties are the Common Single Yellow Cowslip: Double Yellow Cowslip: Scarlet Cowslip: and Hose, and Hose Cowslip.

The fragrant flowers of these plants make a pleasant wine, approaching in flavour to the muscadel wines of the south of France. It is commonly supposed to possess a somniferous quality.

The fourth species has a perennial root, somewhat præmorse, with numerous, long, perpendicular fibres, and sweet-scented: the leaves obovate-lanceolate, bright green, smooth and even, thickish, here and there turned back on the edges, underneath veined and powdered with white meal: the scape a hand's-breadth or span in height, far exceeding the leaves, round, upright, stiff and straight, of a pale green colour and mealy: the flowers sweet-scented, of a purple yellow colour, in an upright umbel, having at its base a many-leaved involucre, each leaflet of which is awl-shaped, and placed at the base of each peduncle. It is an elegant plant; is a native of many parts of Europe, flowering in July and August.

It varies in the size of the plant, having been found wild a foot and half in height, and in the cultivated plant a tendency to become viviparous, has been observed by Curtis, or to produce one or more tufts of leaves among the flowers of the umbel. In its wild state it seeds readily, and frequently when cultivated: the flowers also vary with different shades of purple, and have been found entirely white.

The fifth bears a great affinity to the fourth, but the leaves differ in form, colour, and mode of growth; when fully grown being twice the length of those of the other: they are not mealy, the under side being as green as the upper, and they have a greater tendency to grow upright: the scape is shorter and thicker: the flowers form a similar umbel, but each is smaller, and in point of colour much less brilliant. Upon the whole, though superior in size, it is inferior to that in beauty. It flowers early in May.

The sixth species, in the wrinkled appearance of its foliage, approaches the first sort; whilst in its inflorescence, the colour of its flowers, and solitary scape, which rises to an unusual height, it bears an affinity to the fourth. In the winter it loses the leaves entirely, and forms a sort of bulbous hybernacle under ground: this circumstance is necessary to be known, as it subjects the plant to be thrown away as dead. It flowers in June and July; and is a native of Siberia.

The seventh, in its farinaceous tendency, accords with the eighth sort, but is very unlike it in its wild state, the leaves being much narrower: the flowers larger, and of a different colour: the colour of the flowers approaches to that of lilac: it becomes mealy, particularly on the edges of the leaves, between the serratures, where it is so strong as to make the leaf appear with a white or silvery edge. It is a delicate pretty plant, with a pleasing musky smell, and flowers in March and April. It is probably a native of the Alps.

The eighth species has the leaves fleshy, succulent, with the edges mealy, serrated; or entire, according to some—deeply and equally toothed all round, as others affirm; while some say that the young leaves are entire: the adult ones serrate above the middle: the petioles leafy or winged: the leaflets of the involucre unequal, wide, lanceolate or blunt: the flowers very sweet, four or five in an upright umbel; the calyx one-third of the length of the tube of the corolla, bell-shaped, toothed, mealy, as is also the scape: the tube of the corolla gradually widening upwards, not contracted at the neck: the border concave: the segments emarginate but not deeply, and not cut to the neck: the most common colours are yellow or red, but it is found also purple and variegated, with a white eye powdered with meal: capsule spherical or nearly so, flatted a little at top, of a coriaceous-cartilaginous substance, sprinkled with meal. It is a native of the mountains of Switzerland, Austria, &c. flowering in April and May.

It varies much in the leaves and flowers; as the oblong-leaved; roundish-leaved; broad-leaved; narrow-leaved; green-leaved; white or meal-leaved; the purple-flowered, of various shades and variegations; red-flowered, with different shades and variegations; yellow-flowered, of different shades; double purple-flowered; double yellow-flowered; variegated purples, &c.

With regard to the properties of a fine auricula, they are these according to Martyn: "The stem should be strong, upright, and of such a height as that the umbel of flowers may be above the foliage of the plant: the peduncles or foot-stalks of the flowers should also be strong, and of a length proportional to the size and quantity of the flowers; which should not be less than seven in number, that the umbel may be regular and close: the tube, eye, and border should be well proportioned; which they will be, if the diameter of the first be one part, of the eye three, and the whole border six parts or thereabouts: the circumference of the border should be round or nearly so, or at least not what is called starry: the anthers ought to be large, bold, and fill the tube well; and the tube should terminate rather above the eye, which should be very white, smooth and round, without cracks, and distinct from the ground-colour: the ground-colour should be bold and rich, and regular, whether it be in one uniform circle or in bright patches: it should be distinct at the eye, and only broken at the outer part into the edging: a fine black, purple, or bright coffee-colour, contrast best with the white eye: a rich blue, or bright pink is pleasing, but a glowing scarlet or deep crimson would be most desirable, if well edged with a bright green; this, however, can seldom be expected: the green edge is the principal cause of the variegated appearance in this flower, and it should be in proportion to the ground-colour, that is, about one-half of each: the darker grounds are generally covered with a white powder, which seem necessary, as well as the white eye, to guard the flower from the scorching heat of the sun's rays."

It is observed, that all flowers that want any of the above properties are turned out into the borders of the garden or rejected wholly by every good florist; for as there are varieties every year from seeds, the bad ones must make room for their betters: but in some the passion for new flowers so much prevails, that supposing the old flower to be greatly preferable to a new one, the latter must take place, because it is of their own raising.

Culture.—These beautiful plants are raised without much difficulty, by proper care and attention in their management with respect to the parting of the roots, and the planting them out in their due season; they succeed best in a strong soil, and some of them, as the Primrose kind, in a shady situation.

Culture in the Polyanthus kinds.—These are all capable of being increased by seed and the parting of the roots, the former being the only method for obtaining new varieties or a large supply of plants. The seed should be collected from such flowers as have large upright stems, and which produce many flowers upon the stalk, being large, beautifully striped, open, flat, and not pin-eyed, as from such seed a great variety of good sorts may be expected; care should be however taken that no bad or common flowers stand near them, as they will be apt to debase them, by the admixture of their farina.

The seeds should be sown in boxes or large pots filled with light rich mould. The proper season for this business is in the autumn, or the early spring; but the former is the better, as by sowing then the plants come up well the same year, and are strong and fit to plant out the following spring, and are fine plants for flowering the second spring. In the first season the sowing should be performed as soon as possible after the seeds become well ripened, though some advise December as a good time; but when in the latter, or the spring season, it may be done in February, March, or the following month. The seed should be sown over the surface tolerably thick, being covered in very lightly, and the boxes or pots placed where they may have a little of the morning sun, but not by any means the mid-day heats. The plants may be much forwarded by the pots or boxes being plunged in a mild hot-bed; in the spring, when dry, they should be frequently refreshed with water, in very moderate proportions at a time, removing the plants more into the shade as the heat advances, as it soon destroys them. The autumn-sown plants should have a warm situation during the winter, or be protected from frosts or severe weather by glasses or other means.

In the spring or early summer the plants of the different sowings will be sufficiently strong to plant out, for which a bed or shady border should be prepared, and made rich by neat's dung, on which the plants should be set out about four or five inches distant in every direction, care being taken to water them occasionally till well rooted, after which they only require to be kept free from weeds; and when they flower in the following spring the best flowers should be marked, and the rest be removed into the borders or other places for affording variety; and the valuable plants may be removed, when they have finished flowering, into the borders or beds where they are designed to flower and remain, in the same manner as above, watering them slightly till well rooted again. The roots afterwards require to be parted and removed annually, and the earth of the borders renewed, to prevent their degenerating.

It is necessary, in order to keep up a proper stock of plants, to raise new seedling plants every two or three years, as the old plants mostly decline in beauty after the third year.

In the latter method, the roots should be parted in the beginning of the autumn, as soon as the flowering is over, and it may likewise be done early in the spring; but the former is the best time, as the plants get stronger and flower better in the spring.

In performing the work the plants should be taken up out of the ground, and each bunch divided into several slips, not too small, unless where a great increase is wanted, being careful to preserve some root to each slip; they are then to be planted in a fresh dug border, enriched with dung as above, setting them five or six inches asunder, giving them water directly, and repeating it occasionally till they have taken good root. The approved sorts may in this way be easily preserved.

These plants are observed by the editor of Miller's Dictionary to be very liable to the depredations of snails and slugs, in the spring of the year; the plants and pots therefore should be carefully examined on all sides early in the morning. But their worst enemy is a small red spider or Acarus, which in summer forms its web on the under side of the leaves. These little insects, scarcely visible without a magnifying glass, cause the leaves to become yellow and spotted, and eventually destroy the plant: they multiply with such rapidity as to take possession of a whole collection in a very short time. Such plants as appear infected should therefore be immediately selected from the rest, taken up, and soaked for two or three hours in a strong infusion of tobacco water, and then replanted in a fresh soil or compost, and removed to a situation at a distance from the former. But if the whole bed or border be overrun with this insect, it is best to take up all the plants, and, having soaked them, to plant them elsewhere. The bed or border should then be trenched up, and remain fallow to the next season, or be planted with another crop not liable to this calamity.

In their after-management, they are said to "blow at the same time, and require nearly the same treatment as Auriculas, both with respect to soil and situation; they are however more impatient of heat and drought, and more partial to shade and moisture. They may be set in the same sized pots, and in the same compost as the Auricula, only with the addition of more loam; or they may be planted on cool shady beds or borders, being very hardy, and seldom perishing in the coldest and wettest seasons, because their parent is a native of this country: but during the heats of summer they are frequently destroyed, unless proper precautions be taken. This dislike of heat seems to indicate," it is added, "that the Polyanthus is rather the offspring of the Primrose, which requires shade, than of the Cowslip, which grows in open pastures; though Mr. Miller seems to regard it as a variety of the latter."

The roots of the wild plants, when they can be procured, may be taken up, divided, and planted out in the autumn, when they will flower in the following spring.

The fourth sort readily seeds in its wild state, and also frequently when cultivated: but it is scarcely worth the pains to raise it from seed, since a strong root may be divided so as to form many plants; the best time for doing this is in the spring, soon after the leaves are expanded. Each off-set should be placed in a separate pot, filled with two parts of stiffish loam, and one part of light sandy bog earth, watering and setting them in the shade, under a north wall or paling, but not under trees, keeping them there during summer in pans of water, but in the autumn, as the wet season comes on, taking them out of the pans, and either laying the pots on their sides, or placing them during winter under a common cucumber frame, to keep them from immoderate wet, which this plant cannot bear, although it be a native of boggy meadows. In the following, if not the same year, these plants will blow strong; and they should be thus treated every year, as they require to have their roots frequently parted.

The fifth sort is increased by parting the roots, either in September or at the beginning of March. It is hardy, of ready growth, and will succeed either in the pot or border, by guarding it from the sun in summer, and from severe frost and too much wet in winter.

The sixth species, which is yet a rare plant, must be treated with care, as the fifth sort, and may be raised from seeds, or increased by parting the roots: but it is apt to be lost if not well attended to.

The seventh sort is delicate, and should be placed in a pot of stiffish loam, mixed with one-third rotten leaves, bog-earth, or dung, and plunged in a north border, taking care that it does not suffer for want of water in dry seasons; as when thus treated it increases by its roots nearly as readily as the Auricula.

Culture in the Auricula kinds.—These plants may all be increased by seeds in order to procure new varieties, and by slipping the roots to increase the improved kinds.

In order to obtain good flowers from seeds, choice should be made of the best flowers, which should be exposed to the open air, that they may have the benefit of showers, without which they seldom produce good seeds: the time of their ripening is in June; which is easily known, by their seed-vessels turning to a brown colour, and opening, being then careful lest the seeds be scattered out of the vessel, as they will not be all fit to gather at the same time.

The proper soil for this sort of seed is good, fresh, light, sandy mould, mixed with very rotten neat's dung, or very rotten dung from the bottom of an old hot-bed; with which the pots, boxes, or baskets in which the seeds are to be sown should be filled; and having levelled the surface very smooth, the seeds should be sown, sifting over them a little rotten willow mould; then covering them with a net or wire, to prevent cats or birds from scratching out, or burying the seeds so as to destroy them. Some persons never cover the seeds, but leave them on the surface, for the rain to wash them into the ground, which is often the best method. The boxes, &c. should then be placed so as to receive half the day's sun, during the winter season; but in the beginning of March be removed, where they may have only the morning sun till ten o'clock; for the young plants now soon begin to appear, which, if exposed to one whole day's sun only, are all destroyed. The proper season for sowing the seed is in the latter end of summer, or beginning of autumn, as about September, but they may be sown in the spring.

During the summer season, the plants in dry weather should be often refreshed with water, never giving them too great a quantity at once. In the July following, the plants will be large enough to remove, at which time a bed must be prepared, or boxes, filled with the above-mentioned soil, in which they may be planted about three inches apart, and shaded when in beds, every day, till they are thoroughly rooted, as also in very hot dry weather; but if they are in baskets or boxes, they may be removed to a shady situation.

When planted in beds, there should be some rotten neats' dung laid about ten inches under the surface, and beaten down close and smooth: this will prevent the worms from drawing the young plants out of the earth, which they generally do where this is not practised. This dung should be laid about half a foot thick, which will entirely prevent the worms getting through it until the plants are well established in the beds; and the roots strike down into the dung by the spring, which makes their flowers stronger than usual: these beds should be exposed to the east, and screened from the south sun as much as is necessary.

In the spring following many of these flowers will show; when such of them as have good properties should be selected, which should be removed each of them into a pot of the same prepared earth, and preserved until the next season, at which time a judgment of the goodness of the flower may be formed; but those that produce plain-coloured or small flowers should be taken out, and planted in borders in the out-parts of the garden, to make a show. or gather for nosegays, &c.; the others, which do not produce their flowers the same year, may be taken up, and set out into a fresh bed, to remain till their properties are known.

In the second method, the offsets or slips may be taken from the old roots, in the spring or autumn, and be planted into small pots filled with the same sort of earth as was directed for the seedlings, and during the summer season be set in a shady place, and must be often gently refreshed with water, and in the autumn and winter be sheltered from violent rains. In the spring following these plants produce flowers, though but weak; therefore, soon after they are past flowering, they should be put into larger pots, and the second year they will blow in perfection.

In order to obtain a fine bloom of these flowers, the plants should be preserved from too much wet in winter, which often rots and spoils them, letting them have as much free open air as possible; but not be too much exposed to the sun, which is apt to forward their budding for flower too soon; and the frosty mornings, which often happen in March, thereby destroying their buds, if they are not protected; to prevent which, those who are curious in these flowers place their pots in autumn under a common hot-bed frame, where, in good weather, the plants may enjoy the full air, by drawing off the glasses; and in great rains, snow or frost, be screened by covering them.

About the beginning of February, when the weather is mild, the upper part of the earth in the Auricula pots should be taken off as low as can be, without disturbing their roots, filling up the pots with fresh rich earth, which greatly strengthens them for bloom. As those plants which have strong single heads always produce the largest clusters of flowers, the curious florist should pull off the offsets as soon as it can be done with safety to their growing, to encourage the mother plants to flower the stronger; they should also pinch off the flowers in autumn, where they are produced, and not suffer them to open, that the plants may not be weakened by it. The pots should be covered with mats in frosty weather, during the time of their budding for flower, lest the sharp mornings blight them, and prevent their blowing. When the flower-stems begin to advance and the blossom buds grow turgid, they must be protected from hasty rains, which would wash off their white meally farina, and greatly deface the beauty of their flowers, keeping them as much uncovered as possible, otherwise their stems will be drawn up too weak to support their flowers, (which is often the case when their pots are placed near walls) giving them gentle waterings to strengthen them, but none of the water should be let fall into the centre of the plant, or among the leaves.

When the flowers begin to open, their pots should be removed upon a stage (built with rows of shelves, one above another, and covered on the top, to preserve them from wet: this should be open to the morning sun, but sheltered from the heat of the sun in the middle of the day): in this position they will appear to much greater advantage than when they stand upon the ground; for, their flowers being low, their beauty is hid; whereas, when they are advanced upon shelves, they are fully seen. In this situation they may remain until the beauty of their flowers is past, when they must be set abroad to receive the rains, and have open free air, in order to obtain seeds, which will fail if they are kept too long under shelter. When the seed is ripe it should be gathered when it is perfectly dry, and exposed to the sun in a window upon papers, to prevent its growing mouldy, letting it remain in the pods till the season for sowing.

It is observed by the editor of Miller's Dictionary, that " those who are very nice in raising Auriculas, direct the compost to be made of one half rotten cow-dung two years old; one sixth fresh sound earth of an open texture; one eighth earth of rotten leaves: one twelfth coarse sea or river sand; one twenty-fourth soft decayed willow wood; one twenty-fourth peaty or moory earth; one twenty-fourth ashes of burnt vegetables, to be spread upon the surface of the other ingredients. This compost is to be exposed to the sun and air, turned over once or twice, and passed as often through a coarse screen or sieve; then be laid in a regular heap from fifteen to eighteen inches thick, and in this state remain a year, turning it over two or three times, and keeping it free from weeds."

It is added, that " the pots for Auriculas should be hard baked: the inner diameter of the top be six inches and a half, of the bottom four inches, and they should be about seven inches deep, for common-sized blooming plants: but smaller plants and offsets should have smaller shallower pots, and very large plants should have larger pots in proportion: the bottom should have a small degree of concavity, and the hole should be half an inch in diameter: the rims should project about half an inch, in order to take up and remove them with greater ease and safety. The pots should be buried in wet earth, or immersed in water three or four days or a week, before they are wanted, to take off their absorbent property."

In the after-management of the plants, they should be potted annually soon after bloom; curtailing their fibres, if grown very long, and cutting off the lower part of the main root if too long or decayed. The offsets at this season strike freely, and become well established before winter. The plants should be carefully examined, and where any unsoundness appears, be cut out entirely with a sharp penknife, exposing the wounded part to the sun, and when it is quite dry, applying a cement of bees-wax and pitch in equal quantities, softened in the sun or before a fire. If the lower leaves be yellow or dried up, they should be stripped off in a direction downwards. Having put the hollow shell of an oyster over the hole of the pot, three parts of it should be filled with compost, highest in the middle, placing the plant there, with its fibres regularly distributed all round; then filling the pot up with the compost, adding a little clean coarse sand close round the stem on the surface, and striking the bottom of the pot against the ground or table to settle the earth. The true depth of planting is within half an inch of the lowest leaves, as the most valuable fibres proceed from that part; and the offsets will be thereby encouraged to strike root sooner. When these have formed one or more fibres of an inch or two in length, they may, by means of a piece of hard wood, or by the fingers, be separated with safety, and planted round the sides of a small pot, filled with the same compost, till they are sufficiently grown to occupy each a separate pot; if a small hand glass be placed over each pot it will cause the fibres to grow more rapidly; but if it be long continued, it will draw up and weaken the plants. And in the beginning of May, as soon as the operation of potting is finished, the plants should be placed in an airy, shaded situation, but not under the drip of trees. Here they may remain till September or October, when they should be removed into shelter.

The plants should, in the first favourable weather in February, be divested of their decayed leaves; and by the middle of that month earthing them up; that is, taking away the superficial mould of the pots about an inch deep, and putting in fresh compost, with the addition of a little loam, to give it more tenacity. This contributes greatly to the strength of the plants, and the vigour of their bloom; at the same time it affords a favourable opportunity to separate such offsets as appear to have sufficient fibre to be taken off at this early season. The pots with these offsets should be placed in a frame, in a sheltered situation, till their roots are established. Though frost, unless it be very rigorous, will not destroy the plants, it will injure them, and perhaps spoil the bloom, especially early in the spring; they should therefore be covered with mats in a severe season. When any plant has more than one or two principal stems, it is advisable to pinch off the smallest and weakest, in order to render the blossoms of that which remains larger and more vigorous. And when the flowers (pips) become turgid and begin to expand, the plants should be selected from the rest, removing them to a calm shady corner, suspending small hand-glasses over them.

In this culture the stages for the pots to stand on whilst in bloom should have a northern aspect, and should consist of four or five rows of shelves, rising one above another, the roof being covered with frames of glass; the tallest blowing plants being placed behind, and the shortest in front. The plants must be regularly watered two or three times every week during the blooming season.

All these plants are highly ornamental; the former in beds and borders, and the latter sorts among curious potted flowering plants.

2. PÆONIA TENUIFOLIA.

FINE-LEAVED PÆONY.

THIS genus comprises plants of the large herbaceous flowery perennial kind.

It belongs to the class and order *Polyandria Digynia*, and ranks in the natural order of *Multisiliquæ*.

The characters are: that the calyx is a five-leaved perianthium, small, permanent: leaflets roundish, concave, reflex, unequal in size and situation: the corolla has five roundish petals, concave, narrower at the base, spreading, very large: the stamina have numerous filaments, (about three hundred) capillary, short: anthers oblong, quadrangular, erect, four-celled, large: the pistillum consists of two ovate germs, erect, tomentose: styles none: stigmas compressed, oblong, blunt, coloured: the pericarpium has as many capsules, ovate-oblong, spreading and reflex, tomentose, one-celled, one-valved, opening longitudinally inwards: the seeds several, oval, shining, coloured, fastened to the opening suture.

The species are: 1. *P. officinalis*, Common Peony; 2. *P. tenuifolia*, Slender-leaved Peony.

The first has a thick large root, constituted of several thick fleshy tubers, hanging by strings to the main head, with upright round smooth stems, branching half a yard or two feet in height: the leaves are large, many-lobed, with oblong-oval spreading folioles: the flowers large, deep red or purple, on the terminations of the stalks.

There are two principal varieties: the Common Female and Male Peony.

The former of these has the roots composed of several roundish thick knobs or tubers, which hang below each other, fastened with strings: the stalks are green, about two feet and a half high: the leaves composed of several unequal lobes, which are variously cut into many segments: they are of a paler green than those of the latter sort, and hairy on their under side: the flowers are smaller, and of a deeper purple colour.

The latter has the roots composed of several oblong knobs hanging by strings fastened to the main head: the stems the same height with the preceding: the leaves are composed of several ovate lobes, some of which are cut into two or three segments; they are of a lucid green on their upper side, but are hoary on their under: the stems are terminated by large single flowers, composed of five or six large roundish red petals.

The flowers in both sorts appear in May, and are natives of several parts of Europe, as Switzerland, Dauphiné, Carniola, Piedmont, Silesia, &c.

Miller says, that " it is scarcely necessary to observe that the old names of Male and Female have nothing to do here with the sexes, the flowers of both being hermaphrodite."

There are several subvarieties of the *Female Peony* with double flowers, differing in size and colour, cultivated in gardens. The *Male Peony* also varies with pale, and white flowers, and with larger lobes to the leaves: they also vary much in different countries.

" There is the *Foreign Peony*, with a deep-red flower: the roots are composed of roundish knobs, like those of the *Female Peony:* the leaves are also the same, but of a thicker substance: the stalks do not rise so high: the flowers have a greater number of petals, and appear a little later. It is a native of the Levant. The large double purple Peony is probably a sub-variety of this."

The *Hairy Peony*, with a larger double red flower: the roots like the common Female Peony; but the stalks taller, and of a purplish colour: the leaves much longer, with spear-shaped entire lobes: the flowers large, and of a deep red colour.

The *Tartarian*, wiih roots composed of oblong fleshy tubers of a pale colour: the stalks about two feet high, pale green: the leaves composed of several lobes, irregular in shape and size, some having six, others eight or ten spear-shaped lobes, some cut into two or three segments, and others entire; of a pale green, and downy on their under side: the stalks are terminated by one flower of a bright-red colour, a little less than that of the common Female Peony, having fewer petals.

The *Portugal Peony*, with a single sweet flower, has not roots composed of roundish tubers, but has two or three long taper forked fangs like fingers: the stalk rises little more than a foot high: the leaves are composed of three or four oval lobes, of a pale colour on their upper side, and hoary underneath: the stalk is terminated by a single flower, which is of a bright red colour, smaller than the above, and of an agreeable sweet scent.

The second species has a creeping root, putting forth tuberous fibres, with tubercles the size of a hazel nut, white, fleshy, of a bitterish taste: the stem scarcely a foot high, and commonly single, but in the garden eighteen inches high, and several from the same root: the root-leaves none: the stem round, very obscurely grooved, smooth, as is the whole plant, naked at bottom, having there only a few sheathing scales: the leaves frequent, alternate, the upper ones gradually less, on a round petiole, channelled above, quinate: the leaflets cut into very many narrow segments: the upper leaves simply multifid: the flower sessile at the uppermost leaf, subglobular, accompanied by two leaflets, one multifid, the other simple, both dilated at the base. It is a native of the Ukraine.

Culture.—The single sorts are easily raised by seed, and the double by parting the roots.

The seed should be sown in autumn, soon after it is perfectly ripened, or very early in the spring, (but the former is the better season,) on a bed or border in the open ground where the soil is rather light, raking it in lightly. It may also be sown in small drills.

The plants should afterwards be properly thinned, kept perfectly free from weeds, and be occasionally watered when the weather is hot and dry.

As they should remain two seasons in the beds, it is necessary in the second autumn to spread some light mould over them, to the depth of an inch: and in the autumn following they may be removed where they are to remain. Plants of the double-flowered kinds are often produced from these.

The roots of the old double-flowered plants may be taken up in the beginning of the autumn, and divided so as to have one bud or eye or more to each part, or crown, as without care in this respect they never form good plants. And where regard is had to the flowering, they should not be too much divided, or the off-sets made too small, as when that is the case they do not flower strong. But where a great increase is wanted, they may be divided more, being left longer in the nursery-beds.

They should be planted out as soon as possible after they are separated, though when necessary they may be kept some time out of the earth. The large off-sets may be set out at once where they are to remain; but the small ones are best set in nursery-beds for a year, or till of proper strength for planting out.

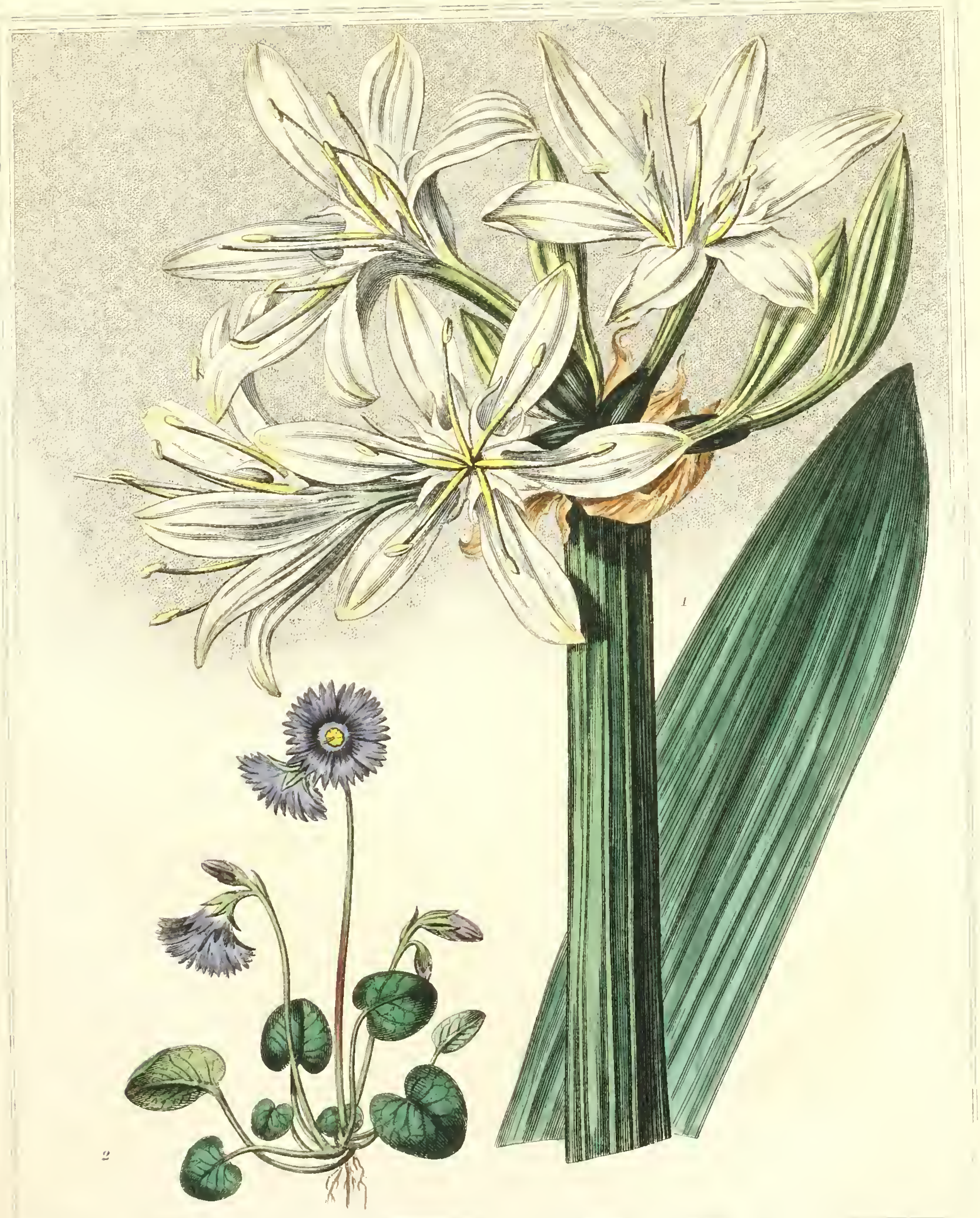
The plants may afterwards be suffered to remain several years unremoved, till the roots are increased to very large bunches, and then be taken up, when the stalks decay, in autumn, divided, and replanted in their allotted places in the manner directed above.

All the sorts are hardy plants, that are capable of flourishing in any common soil in almost any situation, either in open exposures or under the shade of trees.

The Portugal variety, however, should have a warmer situation and lighter soil than the others.

They are proper ornamental flowery plants for large borders, and may be had at all the public nurseries. In planting, one should be put here and there in different parts, placing them with the crowns of the roots a little within the surface of the earth, and at a yard at least distant from other plants, as they extend themselves widely every way, assuming a large bushy growth; and, together with their conspicuous large flowers, exhibit a fine appearance, and are often planted at the terminating corners of large borders adjoining principal walls, displaying a bushy growth in their foliage and flowers. When the flowers are gone, the capsules opening lengthways discover their coloured seeds very ornamentally, especially in that called the Male Peony and varieties. And to forward this, the capsules may be slit open on the inside at the proper valve; whereby they will expand much sooner, and display their beautiful red seed more conspicuously.

Pl. 41



Painted by Syd Edwards *London Publiſhed June 1 1805. by G. Kearsley Fleet Street* *Engraved by F. Sansom*

1 *Pancratium maritimum*
Sea Pancratium

2 *Soldanella alpina*
Alpine Soldanella

PLATE XLI.

1. PANCRATIUM MARITIMUM.

SEA PANCRATIUM.

THIS genus contains plants of the bulbous-rooted flowery perennial kind.

It belongs to the class and order *Hexandria Monogynia*, and ranks in the natural order of *Spathaceæ*.

The characters are: that the calyx is an oblong spathe, obtuse, compressed, opening on the flat side, shrivelling: the corolla has six petals, lanceolate, flat, inserted into the tube of the nectary on the outside above the base: nectary one-leafed, cylindric-funnel-form, coloured at top, with the mouth spreading and twelve-cleft: the stamina have six filaments, awl-shaped, inserted into the tips of the nectary, and longer than they are: anthers oblong, incumbent: the pistillum is a bluntly three-cornered germ, inferior: style filiform, longer than the stamens: stigma blunt: the pericarpium is a roundish capsule, three-sided, three-celled, three-valved: the seeds several, globular.

The species cultivated are: 1. *P. maritimum*, Sea Pancratium; 2. *P. Illyricum*, Illyrian Pancratium; 3. *P. Zeylanicum*, Ceylonese Pancratium; 4. *P. Mexicanum*, Mexican Pancratium; 5. *P. Caribæum*, Caribean Pancratium; 6. *P. Carolinianum*, Carolina Pancratium; 7. *P. Amboinense*, Broad-leaved Pancratium; 8. *P. Verecundum*, Narcissus-leaved Pancratium.

The first has a large, coated, bulbous root, of an oblong form, covered with a dark skin: the leaves are shaped like a tongue; are more than a foot long, and one inch broad, of a deep green, six or seven of them rising together from the same root, encompassed at bottom with a sheath: between these arises the stalk, which is a foot and a half long, naked, sustaining at the top six or eight white flowers, enclosed in a sheath, which withers and opens on the side, to make way for the flowers to come out.

According to Mr. Miller, the root resembles that of the Squill, but is less, covered with a brown skin, and white within, the coats pellucid and gently striped, viscid or full of a clammy juice, bitter to the taste without acrimony. It is a native of the South of Europe.

The second species has a large bulb, covered with a dark skin, sending out many thick strong fibres, striking deep in the ground: the leaves are a foot and half long and two inches broad, of a grayish colour: the scapes thick, succulent, near two feet high: the flowers six or seven, white, shaped like those of the first sort, but with a shorter tube, and much longer stamens. It flowers in June, and frequently produces seeds. It is a native of the South of Europe.

The third has a pretty large bulbous root: the leaves long and narrow, of a grayish colour, and pretty thick, standing upright: the stalk rises among them, a foot and a half high, naked, sustaining one flower at the top: the nectary is large, cut at the brim into many acute segments: the stamens long, and turning towards each other at their points; in which it differs from the other species: the flower has a very agreeable scent, but is of short duration. It is a native of Ceylon.

The fourth species has the stem or scape a long span in height, round, forked towards the top, or dividing into two peduncles, with two oblong tender membranaceous greenish leaflets, and terminated each with a white flower, divided to the very base into six narrow segments; in the middle of these is a white bell-shaped tube, which Linnæus names the nectary, more tender than the petals; the mouth angular, and from each angle putting forth a filament, long, slender and white, terminated by an oblong incurved saffron-coloured anther: the flowers have no smell, and shrivel up over the fruit: leaves four, reclining, smooth, pale green and somewhat glaucous, ridged, slightly grooved in the middle, and with a single streak on each side, otherwise veinless, a long span or a little more in length, an inch or an inch and half in width, produced to a point at the end. It flowers in May.

The fifth has the leaves about a foot long and two inches broad, having three longitudinal furrows: the stalk rises about a foot high, then divides like a fork into two small foot-stalks, or rather tubes, which are narrow, green, and at first encompassed by a thin spathe, which withers, and opens to give way to the flowers: these are white, and have no scent. It is a native of the West Indies.

The sixth species has a roundish bulbous root, covered with a light brown skin, from which arise several narrow dark green leaves, about a foot long: among these comes out a thick stalk (scape) about nine inches high, sustaining six or seven white flowers, with very narrow petals, having large bell-shaped nectariums or cups, deeply indented on their brims: the stamens do not rise far above the nectarium. It is a native of Jamaica and Carolina.

The seventh has the bulb oblong, white, sending out several thick fleshy fibres, which strike downward: the leaves are on very long foot-stalks, some ovate, others heart-shaped, about seven inches long and five broad, ending in points, having many deep longitudinal furrows; they are of a light green, and their borders turn inwards: the stalk thick, round and succulent, rising near two feet high, sustaining at the top several white flowers, shaped like those of the other sorts; but the petals are broader, the tube is shorter, and the stamens are not so long as the petals: there is a thin sheath, which splits open longitudinally. It is a native of Amboyna.

There are several varieties: as the *American*, which grows naturally in the islands of the West Indies, where it is called *White Lily*; and the *latifolium* and *ovatum* also grow naturally in the same place.

The eighth species has the leaves a foot and a half long, half an inch wide: the scape erect, compressed, a foot high: the spathes oblong-lanceolate, acuminate, whitish, shrivelling; the outer larger, an inch and half in length: the flowers fragrant, on three-cornered pedicels, scarcely half an inch long. It is a native of the East Indies; flowering from June to August.

Culture.—All these plants are capable of being increased by planting off-sets from the roots in the latter end of summer, when their stems and leaves decay. The roots may be divided every second or third year.

In the two first sorts, the off-sets may be planted out in nursery-beds for a year or two, to become sufficiently strong, when they may be removed into warm sheltered dry borders; the first being sheltered from frost in severe winters, and the latter in very severe weather, by being covered with tanner's bark, straw, or peas-haulm. The second sort may also be increased by seeds sown in pots, and plunged in a hot-bed.

The other sorts must be planted out in small pots filled with light earth, separately plunging them in the bark-bed of the stove. They should be kept constantly in the tan-bed, and have the management of other tender bulbs. In this way they generally succeed well.

The two first sorts afford variety in the dry warm borders of the pleasure-ground, and the other kinds produce variety as well as fragrance in the stove collections.

2. SOLDANELLA ALPINA.

ALPINE SOLDANELLA.

THIS genus contains a plant of the low herbaceous perennial kind.

It belongs to the class and order *Pentandria Monogynia*, and ranks in the natural order of *Preciæ.*

The characters are: that the calyx is a five-parted perianth, straight, permanent; segments lanceolate: the corolla one-petalled, bell-shaped, widening gradually, straight: mouth torn into many clefts, acute: the stamina have five awl-shaped filaments, anthers simple, sagitatte: the pistillum is a roundish germ; style filiform, length of the corolla, permanent: stigma simple: the pericarpium is an oblong capsule, round, obliquely striated, one-celled, opening by a many-toothed top: the seeds numerous, acuminate, very small: the receptacle columnar, free.

The species is *S. alpina*, Alpine Soldanella.

It has a perennial fibrous root: the leaves almost kidney-shaped, about three quarters of an inch over each way, of a dark green colour, on long footstalks: among these arises a naked flower-stalk or scape, about four inches long, sustaining at the top two small open bell-shaped flowers, with the brim cut into many fine segments like a fringe: the most frequent colour is blue, but it is sometimes snow-white. It flowers in April, and the seeds ripen in July. It is a native of the Alps.

There is a variety which has all the parts smaller; the petiole is shorter and more slender, and the leaves are not so much rounded, but gradually widen from the petiole.

Culture.—This is increased by parting the roots in the autumn about September, planting them in pots or in a cool shady situation, where the soil is of a moist loamy kind, being frequently watered when the season is dry, and kept from the sun.

The seeds soon after they become ripe may also be sown in pots or boxes filled with the above sort of mould, being placed in the shade, and frequently watered. The plants rise in the spring, and in the autumn following should be removed into separate pots, to have the protection of a frame in winter. They succeed best in a northern aspect.

These plants afford variety among other potted plants.

PLATE XLII.

1. PAPAVER ORIENTALE.

EASTERN POPPY.

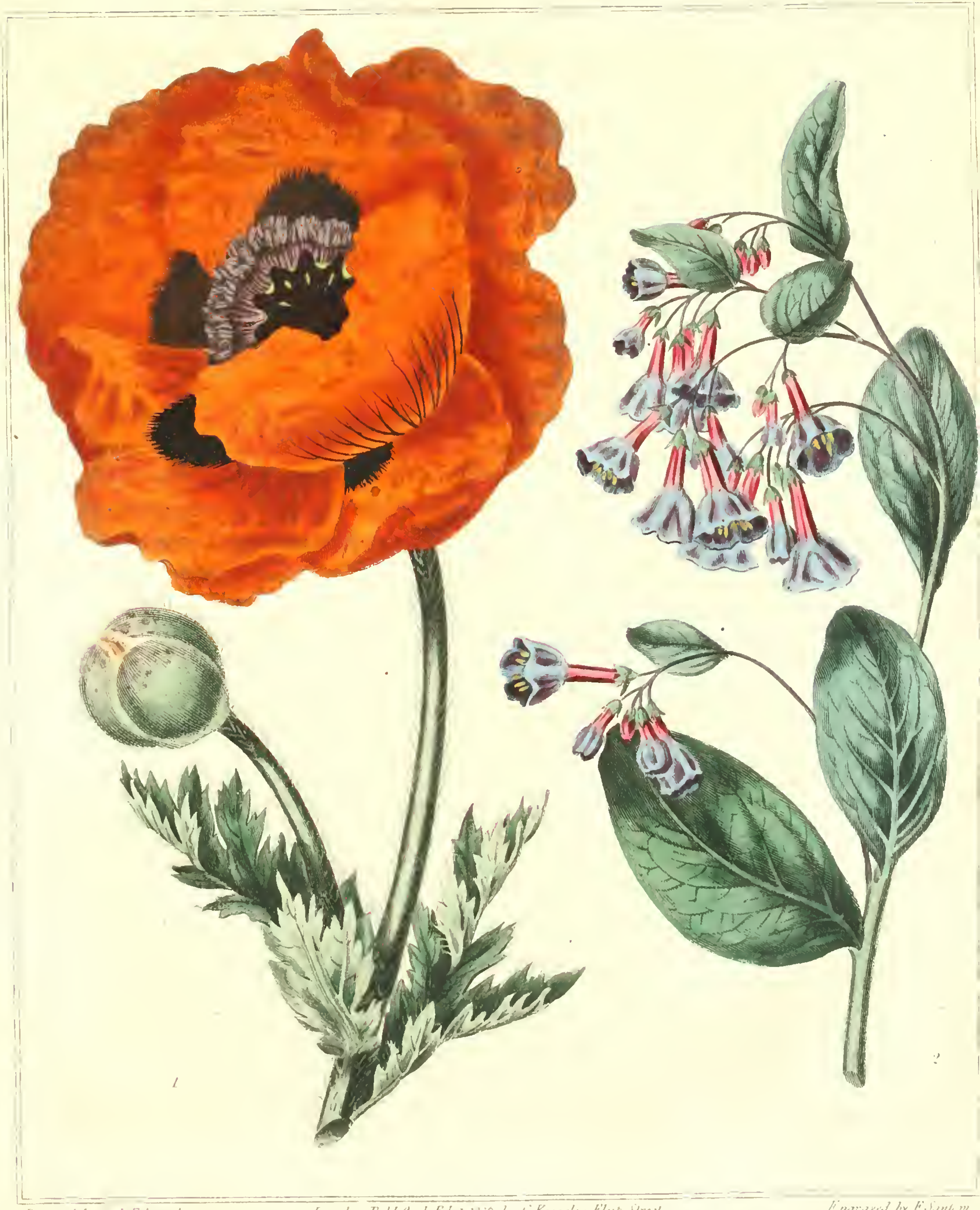
This genus contains plants of the hardy herbaceous fibrous-rooted annual and perennial kinds.

It belongs to the class and order *Polyandria Monogynia*, and ranks in the natural order of *Rhoeadeæ*.

The characters are: that the calyx is a two-leaved perianthium, ovate, emarginate: leaflets subovate, concave, obtuse, caducous: the corolla has four roundish petals, flat, spreading, large, narrower at the base; alternately less: the stamina have numerous filaments, capillary, much shorter than the corolla: anthers oblong, compressed, erect, obtuse: the pistillum has a roundish, large germ: style none: stigma peltate, flat, radiate: the pericarpium is a crowned capsule, with the large stigma, one-celled, half-many-celled, opening by many holes at the top under the crown: the seeds numerous, very small: receptacles, longitudinal plaits, the same number with the rays of the stigma, fastened to the wall of the pericarpium.

The species cultivated are: 1. *P. Somniferum*, White Poppy; 2. *P. Rhoeas*, Corn or Red Poppy; 3. *P. Cambricum*, Welsh Poppy; 4. *P. Orientale*, Oriental Poppy.

The first has the stalks large, smooth, five or six feet high, branching: the leaves large, grayish, embracing at the base, irregularly jagged on their sides: the flowers terminating, whilst enclosed in the calyx hanging down, but before the corolla expands becoming erect: the calyx is composed of two large oval grayish leaves, that separate and soon drop off: the corolla is composed of four large, roundish, white petals, of short duration; and succeeded by large roundish



Painted by S. Edwards

London Published Feb 1 1806 by G Kearsley Fleet Street

Engraved by F. Sansom

1 *Papaver Orientale*
Eastern Poppy

2 *Pulmonaria virginica*
Virginian Lung wort

heads as big as oranges, flatted at top and bottom, and having an indented crown or stigma: the seeds are white. It is a native of the southern parts of Europe, but probably originally from Asia.

There are several varieties, differing in the colour and multiplicity of their petals, which are preserved in gardens for ornament: the Single-flowered sort is chiefly cultivated for use.

The Common Black variety of Poppy has stalks about three feet high, smooth, and dividing into several branches: the leaves are large, smooth, deeply cut or jagged on their edges, and embracing: the petals purple with dark bottoms; succeeded by oval smooth capsules filled with black seeds, which are sold under the name of *Maw-seed.*

Of this there are many sub-varieties: as with large double flowers, variegated of several colours; with red and white, purple and white, and some finely spotted like Carnations.

There are few plants whose flowers are so handsome; but as they have an offensive scent, and are of short duration, they are not in general much regarded: they are annual, flowering in June.

The second species has the stem from one to two feet high, upright, round, branched, purplish at bottom, with spreading hairs, bulbose at the base: the leaves are sessile, forming a kind of sheath at bottom, hairy on both sides: the segments or leaflets unequally toothed or serrate, each tooth rolled back at the edge, callous at top, and terminated by a small spine: the peduncles long, round, upright, one-flowered, red, the hairs on it spreading horizontally. It is a native of every part of Europe, &c. flowering from June to August.

There is a variety with an oval black shining spot at the base of each petal, from which many beautiful garden sub-varieties are produced which have double flowers, white, red bordered with white, and variegated.

In the third the stalks are a foot high, and smooth: the pinnas of the leaves are deeply cut on their edges; and there are a few small leaves on the stalk shaped like the lower ones: the upper part of the stalk is naked, and sustains one large yellow flower, appearing in June; being filled with small purplish seeds. It is a native of Wales, &c.

The fourth species has a perennial root, composed of two or three strong fibres as thick as a man's little finger, a foot and a half long, dark brown on the outside, full of a milky juice, which is very bitter and acrid: the leaves a foot long, closely covered with bristly white hairs: the stems two feet and a half high, very rough and hairy, having leaves towards the lower part like the root-leaves, but smaller: the upper part is naked, and sustains at the top one very large flower, of the same colour with the common red sort. It was found in Armenia, and flowers here in May.

There are a few varieties, differing in the colour of the flowers; and it is said that the flower is sometimes double, but with us it is always single.

Culture.—All the different sorts may be increased by seeds, and the two last sorts also by parting and planting out the roots.

The seeds should be sown in the autumn, or very early in the spring, (but the former is the better season), either in the places where the plants are to grow, or in beds, to be afterwards planted out. The first is probably the best method, as these plants do not bear removing well.

When they are cultivated for ornament, seed of the finest double sorts should be carefully provided and made use of, and be sown in patches.

In the practice of Mr. Ball, in cultivating the first sort for the purpose of preparing opium from it, " the seed was sown at the end of February, and again the second week in March, in beds three feet and a half wide, well prepared with good rotten dung, and often turned or ploughed, in order to mix it well, and have it fine, either in small drills, three in each bed, or broadcast; in both cases, thinning out the plants to the distance of a foot from each other, when about two inches high, keeping them free from weeds." They produced from four to ten heads each, and showed large flowers of different colours. " With an instrument something like a rake, but with three teeth, the drills may, he says, be made at once." He found that the plants did not bear transplanting; as, out of 4000 which he transplanted, not one plant came to perfection.

The roots of the two last sorts may be divided in the autumn, or spring, (but the first period is the better,) leaving some root fibres to each parting, planting them out where they are to remain, as soon afterwards as possible.

In all the sorts the plants only require afterwards to be kept free from weeds, and those raised from seed properly thinned out.

They all afford ornament and variety in the clumps, borders, and other parts of pleasure grounds and gardens; and the first sort may sometimes be grown to advantage for the purpose of having the juice which it affords made into opium.

2. PULMONARIA VIRGINICA.

VIRGINIAN LUNG-WORT.

This genus furnishes plants of the hardy perennial fibrous-rooted kind.

It belongs to the class and order *Pentandria Monogynia*, and ranks in the natural order of *Asperifoliæ*.

The characters are: that the calyx is a one-leafed perianthium, five-toothed, prismatic-pentagonal, permanent: the corolla one-petaled, funnel-form: tube cylindrical, the length of the calyx: border half-five-cleft, blunt, from upright-spreading: throat pervious: the stamina have five filaments, in the throat, very short: anthers erect, converging: the pistillum has four germs: style filiform, shorter than the calyx: stigma blunt, emarginate: there is no pericarpium: calyx unchanged, fostering the seeds at bottom: the seeds four, roundish, blunt.

The species cultivated are: 1. *P. officinalis*, Common Lungwort;

2. *P. angustifolia*, Narrow-leaved Lungwort; 3. *P. Virginica*, Virginian Lungwort.

The first has a perennial fibrous root: the lower leaves rough, about six inches long, and two inches and a half broad, of a dark green on their upper side, marked with many broad whitish spots, but pale and unspotted on their under side: the stalks almost a foot high, having several smaller leaves on them standing alternately: the flowers are produced in small bunches at the top of the stalks, of different colours. It is a native of Europe, flowering from March to May.

The second species has leaves much narrower than those of the first sort, and covered with soft hairs, not spotted: the stalks rise a foot high, and have narrow leaves on them, of the same shape with those below, but smaller, and almost embracing: the flowers are produced in bunches on the top of the stalks, of a beautiful blue colour. It is a native of Sweden.

It varies with white flowers.

The third has a perennial, thick, fleshy root, sending out many small fibres: the stalks a foot and half high, dividing at the top into several short branches: the leaves near the root four or five inches long, two inches and a half broad, smooth, of a light green, on short footstalks; those upon the stem diminish in their size upwards, are of the same shape, and sessile. Every small branch at the top of the stalk is terminated by a cluster of flowers, each standing upon a separate short peduncle. The most common colour of these flowers is blue; but there are some purple, others red, and some white. They appear in April, and if they have a shady situation continue in beauty great part of May. It grows upon mountains in most parts of North America.

Culture.—These plants are increased by seeds, and parting the roots.

The seeds should be sown in the spring, in a bed or border of common earth, raking them in. They soon come up, and in the latter end of the summer they should be put out, either where they are to remain, or in nursery-beds, till October, when they should be planted out finally.

The roots should be parted in the autumn, as about August or September, but the sooner after they have done flowering the better. They should not be divided too small, and be planted directly; when they flower strong in the following spring. They afford ornament in shady situations.

PLATE XLIII.

1. PHILADELPHUS CORONARIUS.

COMMON PHILADELPHUS.

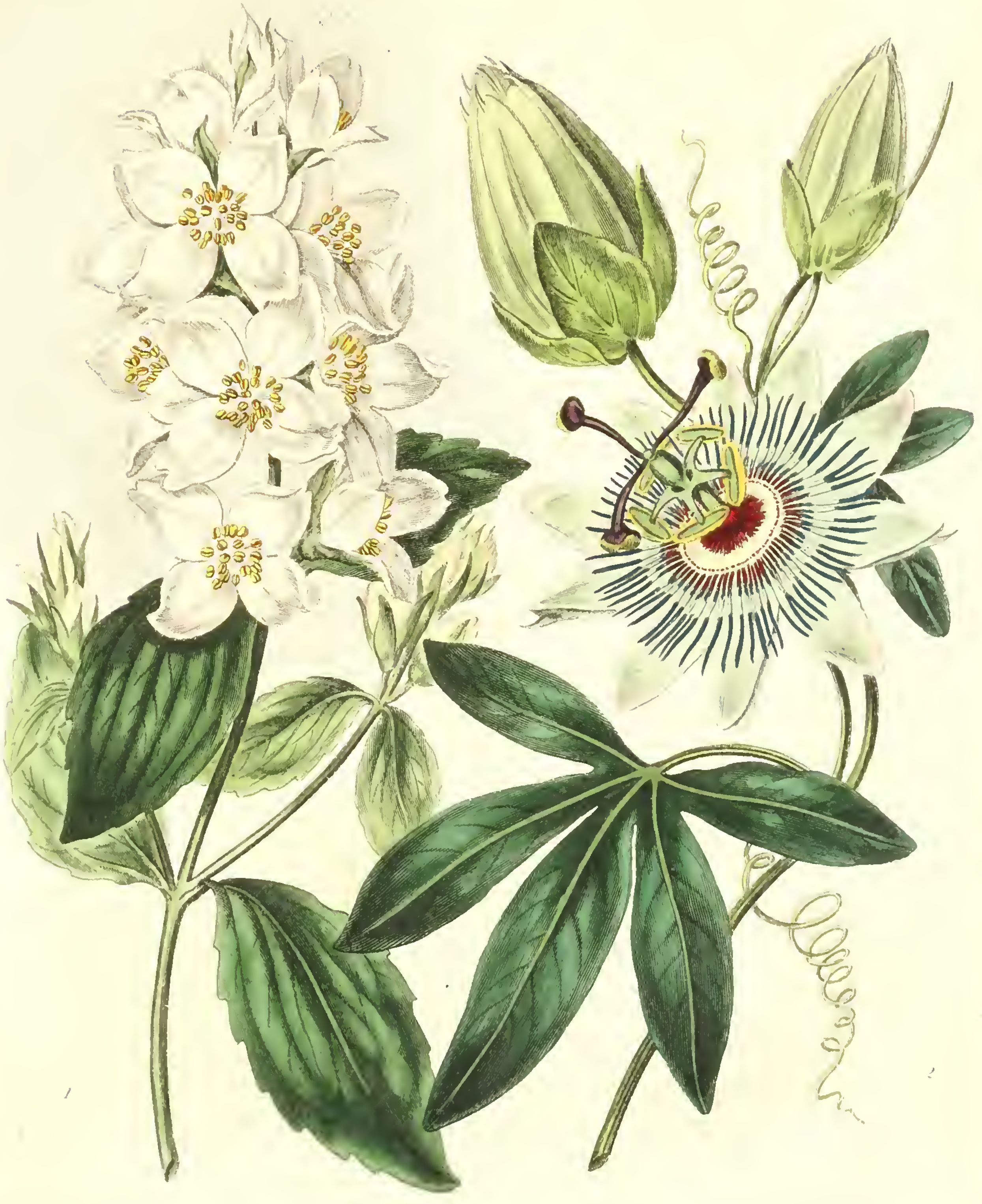
This genus contains plants of the hardy deciduous flowering shrubby kind.

It belongs to the class and order *Icosandria Monogynia*, and ranks in the natural order of *Hesperideæ*.

The characters are: that the calyx is a one-leafed perianthium, four or five-parted, acuminate, permanent: the corolla has four or five roundish petals, flat, large, spreading: the stamina have twenty or twenty-five awl-shaped filaments, the length of the calyx: anthers erect, four grooved: the pistillum is an inferior germ: style filiform, four or five parted: stigmas simple: the pericarpium is an ovate capsule, acuminate at both ends, naked at the top by the calyx being barked, four or five-celled: partitions contrary: the seeds numerous, oblong, small, decumbent, arilled, fastened to the thickened edge of the partitions: arils club-shaped, acuminate, toothleted at the base.

The species is *P. coronarius*, Common Syringa, or Mock Orange.

It is a shrub that sends up a great number of slender stalks from the root, seven or eight feet in height, having a gray bark, and putting forth several short branches from their sides: the leaves ovate or ovate-lanceolate; those upon the young shoots three inches and a half long, and two broad in the middle, terminating in acute points, and having several indentures on their edges; they are rough and of a deep green on their upper side, and pale on their under; stand opposite upon very short footstalks, and have the taste of fresh cucumbers: the flowers come out from the side, and at the end of the



Painted by Sydᵐ Edwards   London Published July 1 1808 by G. Kearsley, Fleet Street   Engraved by F. Sansom.

1 Philadelphus coronarius
Common Philadelphus

2 Paſsiflora cærulea
Common Paſsion Flower

branches, in loose bunches, each on a short pedicel; they are white, and have a strong scent, which at some distance resembles that of orange-flowers; but near, it is too powerful for most persons: the flowers appear at the end of May, and continue a great part of June. It is a native, probably, of the South of Europe.

There are two varieties: the dwarf syringa, which seldom rises above three feet high: the leaves are shorter, more ovate, and little indented on their edges: the flowers come out singly from the side of the branches, and have a double or treble row of petals of the same size and form as the other, and the flowers have the same scent; but flowering very rarely, it is not so much in estimation.

The Carolina syringa, which rises with a shrubby stalk about sixteeen feet high, sending out slender branches from the sides, opposite to each other: the leaves smooth, shaped like those of the pear-tree, entire, opposite, on pretty long footstalks: the flowers are produced at the ends of the branches; they are large, but without scent; each has four white oval petals spreading open, and a large calyx composed of four acute-pointed leaflets.

Culture.—These plants may be increased by suckers, layers, and cuttings.

The suckers are sent from the roots in great plenty; these should be taken from the old plants in autumn, and be planted in a nursery, to grow one or two years till they have obtained sufficient strength, when they may be removed to the places where they are to remain.

The layers may be laid down in the autumn, being made from the young twigs. These may be taken off in the following autumn, when well rooted, being planted out where they are to remain.

The cuttings of the young shoots may be planted in the autumn, in a shady situation, where they soon form plants.

The plants are extremely hardy, and thrive in almost any soil or situation, but grow taller in light good ground than in that which is stiff.

They are commonly disposed in plantations of flowering shrubs, among others of the same growth; mixing very well with lilacs, guelder roses, and laburnums; and particularly valuable from their thriving under the shade of trees, and forming a blockade against low buildings, where persons have no objection to their strong smell.

2. PASSIFLORA CÆRULEA.

COMMON PASSION FLOWER.

This genus contains plants of the herbaceous and shrubby flowering kinds.

It belongs to the class and order *Gynandria Pentandria, (Pentandria Trigynia,) (Monadelphia Pentandria,)* and ranks in the natural order of *Cucurbitaceæ.*

The characters are: that the calyx is a five-parted perianthium, flat, coloured: the corolla has five petals, semilanceolate, flat, blunt, of the same size and form with the calyx: nectary a triple crown; the outer longer, encircling the style within the petals, more contracted above: the stamina have five awl-shaped filaments, fastened to a column at the base of the germ, and united at bottom, spreading: anthers incumbent, oblong, blunt: the pistillum is a roundish germ, placed on the apex of a straight, cylindrical column: styles three, thicker above, spreading: stigmas capitate: the pericarpium is a fleshy berry, subovate, one-celled, pedicelled: the seeds very many, ovate, arilled: receptacle of the seeds triple, growing longitudinally to the rind of the pericarp.

The species cultivated are: 1. *P. cærulea,* Common or Blue Passion-flower; 2. *P. incarnata,* Rose-coloured Passion-flower; 3. *P. lutea,* Yellow Passion-flower; 4. *P. serratifolia,* Notch-leaved Passion-flower; 5. *P. maliformis,* Apple-fruited Passion-flower; 6. *P. quadrangularis,* Square-stalked Passion-flower; 7. *P. alata,* Wing-stalked Passion-flower; 8. *P. laurifolia,* Laurel-leaved Passion-flower, or

Water Lemon; 9. *P. multiflora*, Many-flowered Passion-flower; 10. *P. rubra*, Red-fruited Passion-flower; 11. *P. Murucuja*, Moon-shaped-leaved Passion-flower; 12. *P. Vespertilio*, Bat-winged Passion-flower; 13. *P. rotundifolia*, Round-leaved Passion-flower; 14. *P. ciliata*, Ciliated Passion-flower; 15. *P. suberosa*, Cork-barked Passion-flower; 16. *P. holosericea*, Silky-leaved Passion-flower; 17. *P. glauca*, Glaucous-leaved Passion-flower; 18. *P. minima*, Dwarf Passion-flower.

The first rises in a few years to a great height, with proper support: it may be trained up more than forty feet high: the stalks will grow almost as large as a man's arm, and are covered with a purplish bark, but do not become very woody: the shoots often grow to the length of twelve or fifteen feet in one summer, and being very slender, must be supported, otherwise they will hang to the ground, intermix with each other, and appear very unsightly: at each joint is one leaf composed of five smooth entire lobes; the middle one, which is longest, almost four inches long, and one inch broad in the middle; the others are gradually shorter, and the two outer lobes are frequently divided on their outer side into two smaller ones: their foot-stalks are near two inches long, and have two embracing stipules at their base; and from the same point issues a long clasper or tendril; the flowers come out at the same joint with the leaves, on peduncles almost three inches long: they are blue, have a faint scent, and continue only one day: the fruit is egg-shaped, the size and shape of the Mogul-plum, and when ripe of the same yellow colour. It grows naturally in Brazil.

There is a variety with much narrower lobes, divided almost to the bottom: the flowers come later in the summer: the petals are narrower, and of a purer white colour.

The second species has a perennial root: the stalks are annual, slender, rising four or five feet high: at each joint one leaf, on a short foot stalk, having mostly three oblong lobes, but the two side ones are sometimes divided part of their length into two narrow segments, and thus becoming five-lobed; they are thin, of a light green, and slightly serrate: the flowers are produced from the joints of the stalk, at the footstalks of the leaves, on long slender peduncles, in succession as the stalks advance in height during the summer months: they have an agreeable scent, but are of short duration, opening in the morning, and fading away in the evening: the fruit is as large as a middling apple, changing to a pale orange colour when ripe. It grows naturally in Virginia.

The third has a creeping root, sending up many weak stalks, three or four feet high: the leaves are shaped like those of ivy, and almost as large, but of a pale green and very thin consistence: the peduncle is slender, an inch and half long: the flowers dirty yellow, not larger than a sixpence when expanded. It is a native of Virginia and Jamaica, flowering in May and June.

The fourth species is perennial and shrubby: the stems are round; the younger ones very slightly villose, and climbing very high: the stipules are linear and acuminate: the footstalks of the leaves furnished with two pairs of glandules: the leaves ovate, smooth, and slightly serrated round their whole outline: the peduncles are one-flowered and solitary: the flowers have an extremely agreeable odour. It is a native of the West Indies, flowering from May to October.

The fifth has a thick stem, triangular, by slender tendrils thrown out at every joint rising to the height of fifteen or twenty feet: at each joint is one leaf, six inches long, and four broad in the middle, of a lively green and thin texture, having a strong midrib, whence arise several small nerves, diverging to the sides, and curving up towards the top: petioles pretty long, having two small glands in the middle: two large stipules encompass the petioles, peduncles and tendrils at the base: the peduncles are pretty long, having also two small glands in the middle: the cover of the flower is composed of three soft velvety leaves, of a pale red, with some stripes of a lively red colour; the petals are white, and the rays blue: the flowers being large make a fine appearance, but are of short duration; there is however a succession for some time: the fruit is roundish, the size of a large apple, yellow when ripe, having a thicker rind than any of the other sorts. It grows naturally in the West Indies.

In the sixth the stem is almost simple, thick, membranaceous at the four corners, somewhat hispid: the leaves are petioled, five or six inches long, entire, somewhat rugged, but without any pubescence: the tendrils very long, axillary: stipules in pairs, ovate at the base of the petioles, on which are six glands: the peduncles opposite to the petioles, thicker: the flowers very large, encompassed by a three-leaved involucre, the leaves of which are roundish, concave, entire, smooth, pale: the fruit is very large, oblong, and fleshy: the flower is much larger, though very like the above sort in colour. It is a native of Jamaica.

The seventh species is very like the preceding at first sight: the open flower has also a general resemblance; but the peduncle is cylindrical; the three divisions of the involucre small, lanceolate, with glandular serratures; the pedicel thickest at the insertion into the convex base of the flower: the five or six outer petals are oblong with an awn, the inner longer; the outer principal rays thinnest and shortest; imperfect rays in a double row, below and distinct from them a single row: no imperfect operculum; operculum partly horizontal and partly turning up to the column, then folding back down again and embracing the column, with which it is so connected that it appears inseparable, but is not joined to the column: nectary round the column, confined by the base: the column comes to the bottom of it. It is a native of the West Indies.

If this does not equal the first sort in elegance, it exceeds it in magnificence, in brilliancy of colour, and in fragrance, the flowers being highly odoriferous.

The eighth has a suffrutescent stem, with very divaricating, filiform branches: the leaves a little emarginate at the base, nerved, and very smooth, on short petioles compressed a little, having two glands under the base of the leaf: the tendrils are very long: the peduncles the length of the petioles: the three leaflets of the involucre are roundish, concave, with blunt glandular toothlets about the edge, and pale: the five leaflets of the calyx are broad-lanceolate, slightly membranaceous at the edge, horned with a point or awn, smooth, variegated on the inside with blood-red dots: petals five, the length of the calyx, narrower, acuminate, with blood-red dots scattered over them: the flowers are very handsome and odoriferous, but the fruit ovate and watery. It flowers in June and July, and is a native of Jamaica.

The ninth species has slender stalks, sending out many small branches, and climbing to the height of twenty-five or thirty-feet: by age they become woody towards the bottom, and their joints are not far asunder: the leaves are on short slender petioles, three inches and a half long, and two broad in the middle, rounded at the base, but terminating in a point at top, smooth, entire, and of a lively green colour: the flowers are axillary, on long peduncles, having an agreeable odour, but seldom continuing twenty hours open. There is a succession of them from June to September, and the fruit will sometimes ripen in this climate. It grows naturally at La Vera Cruz.

The tenth has an herbaceous stem, twining round, grooved, hirsute, red: the lobes of the leaves entire, nerved, somewhat hispid, soft: the petioles round, red, villose, without glands: the tendrils subaxillary: the flowers alternate, nodding, on solitary one-flowered peduncles: the fruit spherical, marked with six lines, scarlet when ripe, hirsute. It is a native of the West Indies, flowering in April and May.

The eleventh species has an herbaceous, grooved, smooth stem: the leaves ovate or oblong, two-horned, with an intermediate bristle, three-nerved, veined, smooth, entire: dots on the back hollowed, pellucid: the petioles grooved, smooth, destitute of glands: the tendrils subaxillary, filiform, long: the flowers in pairs, axillary, scarlet, large: the berry ovate, the size of a pigeon's egg, and pedicelled. It is a native of the West Indies.

The twelfth has slender, striated, roundish stalks, less than a straw, of the same thickness from top to bottom, and of a brownish red colour, dividing into many slender branches: the leaves shaped like the wings of a bat when extended, about seven inches in length, or rather breadth, from the base to the top not more than two inches and a half, the upper ones smaller, the middle wider, and the lower narrower, smooth and somewhat shining; the colour in the upper ones pale, in the middle deeper, in the lower darker green, with two purple tubercles or glands towards the base, where they are connected with the petiole; which is set half an inch from the base of the leaf, three nerves springing from it, two extending each way to the narrow points of the leaf, the other rising upright to the top, where is the greatest length of the leaf: the flowers are on short round peduncles from the axils of the middle and upper leaves, white and of a middle size, about three inches in diameter when expanded: they are without scent, open in the evening or during the night, in the month of July, and finally close about eight or nine o'clock in the morning. It is a native of the West Indies.

The thirteenth species has the stem suffrutescent at bottom, subdivided, angular, grooved: the leaves semiovate, three-nerved, veined, smooth on both sides, marked behind longitudinally with pellucid dots: lobes terminated by very small bristles; the middle one a little larger than the others: the petioles short, without glands: the tendrils filiform, very long: the stipules two, opposite, awl-shaped: the peduncles axillary, filiform, an inch long: the flowers nodding, pale green, rather large: the berry egg-shaped. It is distinguished from the other sorts by its rounded leaves slightly three-lobed at top only. It is a native of Jamaica.

The fourteenth runs to a great height, and has dark-green glossy leaves: the involucrum is composed of three leaves divided into capillary segments, each terminating in a viscid globule: the pillar supporting the germen is bright purple with darker spots: the petals are greenish on the outside, and red within: the crown consists of four rows of radii, which are varied with white and purple. It is a native of Jamaica.

The fifteenth species rises with a weak stalk to the height of twenty feet: as the stalks grow old, they have a thick fungous bark like that of the Cork-tree, which cracks and splits: the smaller branches are covered with a smooth bark: the leaves are smooth, on very short petioles: the middle lobe is much longer than the lateral ones, so that the whole leaf is halbert-shaped: the flowers are small, of a greenish yellow colour: the fruit egg-shaped, dark purple when ripe. It is perennial, and a native of the West Indies, flowering from June to September.

In the sixteenth species the stalks rise twenty feet high, dividing into many slender branches, covered with a soft hairy down: the leaves are shaped like the point of a halbert, three inches long, and an inch and half wide at the base, light green, soft and silky to the touch, standing obliquely to the foot-stalks: the flowers are not half so large as those of the common or blue Passion-flower; the fruit small, roundish, yellow when ripe, leaves ovate, tomentose on both sides: lateral lobes short; with an obsolete gland underneath behind the sinus of the lobe. It grows naturally at La Vera Cruz, flowering most part of the summer.

In the seventeenth, the whole plant is very smooth and even: the leaves glaucous underneath, undotted: the petioles furnished with two or four glands below the middle: the stipules acute, quite entire, more than half an inch in length: the flowers are sweet. It is a native of Cayenne.

The eighteenth species has the stem twining, simple, becoming corky at the base with age, round, smooth: the leaves subpeltate, subcordate: lateral lobes almost horizontal; all acute, nerved, smooth on both sides: the petioles short, round, reflex, smooth: the glands two, opposite, small, sessile, concave, brown, in the middle of the petioles: the stipules two, opposite, awl-shaped, by the side of the petioles: the tendrils long, between the petioles: peduncles axillary, solitary, longer than the petioles, loose, one-flowered: the flowers small, whitish: the berry small, blue, egg-shaped.

Culture.—In all the sorts it is either by seeds, layers, or cuttings, according to the kinds.

The first or hardy sort is capable of being raised either by seeds, layers, or cuttings: the seed should be sown in the early spring, as March, in large pots, half an inch deep, either plunging them in a warm border, and as the weather becomes warm moving them to the shade; or in a hot-bed, which will forward the germination of the seed more fully, and the plants will rise sooner; which should afterwards be hardened gradually to the open air till the autumn, and then placed under a garden-frame for the winter, to have shelter from frosts, and in the spring planted out in pots, or some in the nursery; and in a year or two they may be transplanted where they are to remain, against some warm south wall.

The layers should be laid down from some of the branches in the common way in the spring, when they will readily emit roots, and make proper plants by autumn; when, or rather in spring following, they should be taken off and transplanted either into pots in nursery rows, or where they are to remain.

The cuttings should be made in February or March from the strong young shoots, in length from about eight to ten or twelve inches, planting them in any bed or border of common earth, giving frequent watering in dry weather, and when sunny and hot, if in a situation exposed to them, a moderate shade of mats will be of much advantage. They will emit roots at bottom, and shoots at top, and become good plants by autumn, allowing them the occasional shelter of mats, &c. during the winter's frost; and in the spring let them be planted out. If a quantity of these cuttings be planted close, and covered down with hand-glasses, it will forward their rooting; observing, however, when they begin to shoot at top, to remove the glasses, in order to admit fresh air.

The second and third, or green-house kinds, may be increased by seed, layers, and parting the roots: the seed, obtained from America, should be sown in pots in March or April, plunging them in a hot-bed to raise the plants, which afterwards inure to the open air in summer, giving them the shelter of a green-house or frame in winter: and in the spring following plant some out in pots, placing them among the green-house plants; and others may be planted in the full ground, under a warm fence, to take their chance.

The layers should be made in the summer from young shoots, which will readily grow, and become good plants for potting off in autumn. The parting the roots should be done in spring, before they begin to shoot. The second sort multiplies exceedingly by its creeping roots; which should be divided into slips, and planted in a bed of rich earth till autumn, when some should be transplanted into pots for occasional shelter in winter.

All the other more tender stove kinds are capable of being increased by seeds, layers, and cuttings: The seeds are procured chiefly from abroad; and should be sown in spring in pots, plunging them in a hot-bed, or in a stove bark-bed: the plants soon appear, which, when three inches high, should be pricked out in separate small pots, giving water, and re-plunging them in the hot-bed, occasionally shading them till rooted: as they advance in growth, they should be shifted into larger pots, and be retained constantly in the stove.

The layers should be made from the young branches in the spring or beginning of summer, which will readily grow, and be fit to pot off separately in autumn.

The cuttings should be made in the spring or summer, from the young shoots, planting them in pots, plunging them in the bark, and giving water frequently; when most of them will take root, and be fit to pot off singly in autumn.

In respect to their general culture; as in severe winters, in the first sort, the branches, if not duly protected, are sometimes killed, it is advisable at such times, whilst the plants are young in particular, to give them the shelter of mats during the inclement season, and protect their roots with dry litter laid over the ground; carefully uncovering their branches as soon as the frost breaks: this covering, however, is only necessary in very severe frosts.

The green-house sorts should generally be potted, to move to shelter in winter, either of a green-house, or deep garden-frame: some plants of each sort may also be planted in the full ground, in a warm border, to take their chance; covering the ground over their roots in severe weather; and in the different orders of planting, placing stakes for the support of their climbing growth in the summer. And all the stove kinds must constantly be kept in pots, placed in the stove, and for the most part plunged in the bark-bed; placing strong stakes for the purpose of training the branches to, and managing them as other stove-plants of a similar growth.

The first sort is highly ornamental in the open ground when trained against southern walls, &c.; and those of the green-house, and stove kinds, among other plants in these collections.

PLATE XLIV.

1. PHILADELPHUS CORONARIUS.

SYRINGA, OR MOCK ORANGE.

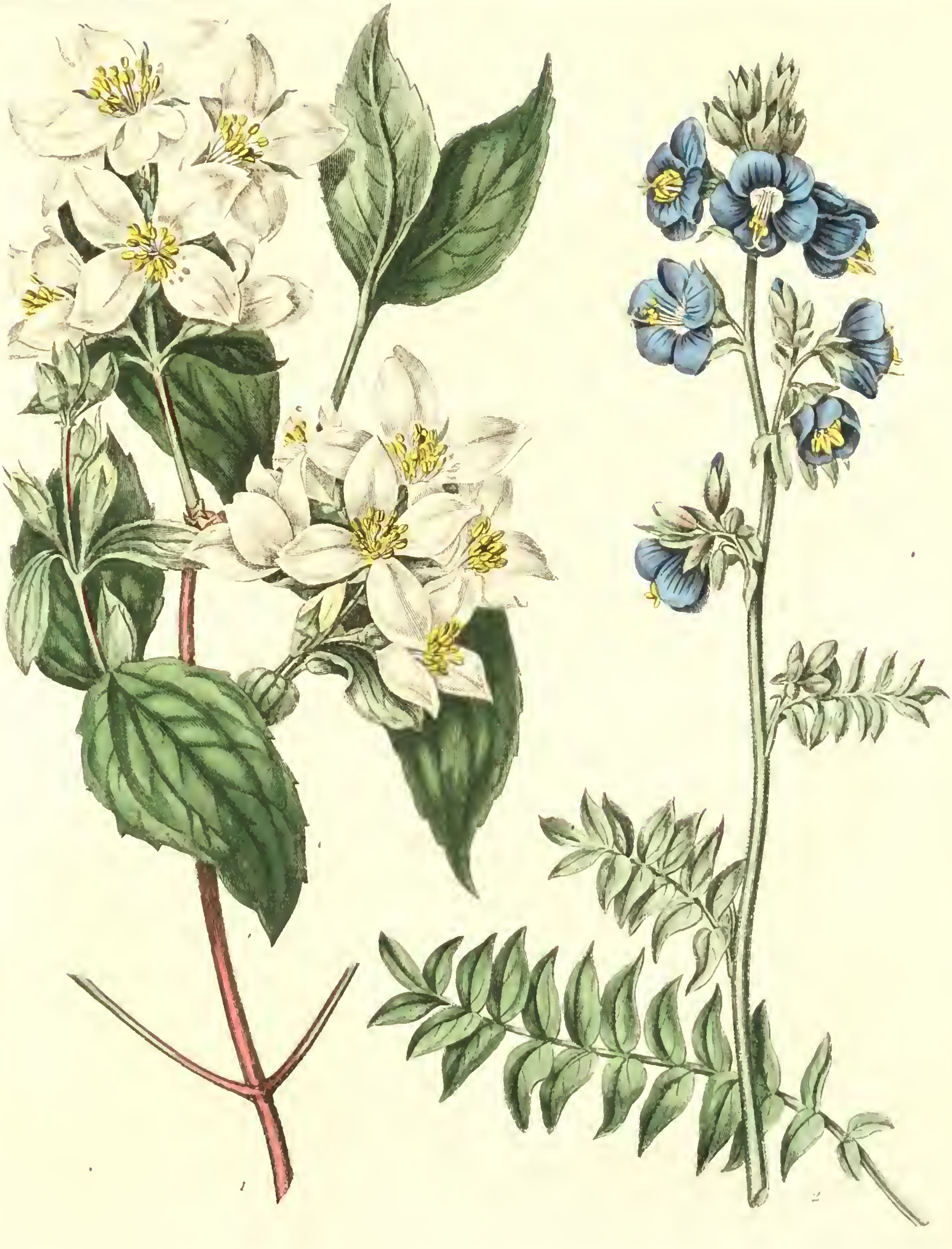
This genus contains plants of the hardy deciduous flowering shrubby kind.

It belongs to the class and order *Icosandria Monogynia*, and ranks in the natural order of *Hesperideæ*.

The characters are: that the calyx is a one-leafed perianthium, four or five-parted, acuminate, permanent: the corolla has four or five roundish petals, flat, large, spreading: the stamina have twenty or twenty-five awl-shaped filaments, the length of the calyx: anthers erect, four-grooved: the pistillum is an inferior germ: style filiform, four or five-parted: stigmas simple: the pericarpium is an ovate capsule, acuminate at both ends, naked at the top by the calyx being barked, four or five-celled: partitions contrary: the seeds numerous, oblong, small, decumbent, arilled, fastened to the thickened edge of the partitions: arils club-shaped, acuminate, toothleted at the base.

The species is *P. coronarius,* Common Syringa or Mock Orange.

It is a shrub that sends up a great number of slender stalks from the root, seven or eight feet in height, having a gray bark, and putting forth several short branches from their sides: the leaves ovate or ovate-lanceolate; those upon the young shoots three inches and a half long, and two broad in the middle, terminating in acute points, and having several indentures on their edges; they are rough and of a deep green on their upper side, and pale on their under; stand opposite upon very short footstalks, and have the taste of fresh cucumbers: the flowers come out from the side, and at the end of the branches, in loose bunches; each on a short pedicel; they are



[illegible] London Published Oct 1. 1805 by G. Kearsley Fleet Street Evans sc.

Philadelphus coronarius
1 *Syringa or Mock Orange*

Polemonium caruleum
2 *Blue Greek Valerian*

white, and have a strong scent, which at some distance resembles that of orange-flowers; but near, it is too powerful for most persons: the flowers appear at the end of May, and continue a great part of June. It is a native, probably, of the South of Europe.

There are two varieties: the Dwarf Syringa, which seldom rises above three feet high: the leaves are shorter, more ovate, and little indented on their edges: the flowers come out singly from the side of the branches, and have a double or treble row of petals of the same size and form as the other, and the flowers have the same scent; but flowering very rarely, it is not so much in estimation.

The Carolina Syringa, which rises with a shrubby stalk about sixteen feet high, sending out slender branches from the sides, opposite to each other: the leaves smooth, shaped like those of the pear-tree, entire, opposite, on pretty long footstalks: the flowers are produced at the ends of the branches; they are large, but without scent; each has four white oval petals spreading open, and a large calyx composed of four acute-pointed leaflets.

Culture. These plants may be increased by suckers, layers, and cuttings.

The suckers are sent from the roots in great plenty; these should be taken from the old plants in autumn, and be planted in a nursery, to grow one or two years till they have obtained sufficient strength, when they may be removed to the places where they are to remain.

The layers may be laid down in the autumn, being made from the young twigs. These may be taken off in the following autumn, when well rooted, being planted out where they are to remain.

The cuttings of the young shoots may be planted in the autumn, in a shady situation, where they soon form plants.

The plants are extremely hardy, and thrive in almost any soil or situation, but grow taller in light good ground than in that which is stiff.

They are commonly disposed in plantations of flowering shrubs, among others of the same growth; mixing very well with lilacs, guelder roses, and laburnums; and particularly valuable from their thriving under the shade of trees, and forming a blockade against low buildings, where persons have no objection to their strong smell.

2. POLEMONIUM CÆRULEUM.

BLUE GREEK VALERIAN.

This genus contains plants of the fibrous-rooted, herbaceous flowering perennial kind.

It belongs to the class and order *Pentandria Monogynia*, and ranks in the natural order of *Campanaceæ*.

The characters are: that the calyx is a one-leafed perianth, half-five-cleft, inferior, goblet-shaped, acute, permanent: the corolla one-petalled, wheel-shaped: tube shorter than the calyx, closed by five valves placed at the top: border five-parted, wide, flat; segments roundish, blunt: the stamina have five filaments, inserted into the valves of the tube, filiform, shorter than the corolla, inclining: anthers roundish, incumbent: the pistillum is an ovate, acute, superior germ: style filiform, the length of the corolla: stigma trifid, revolute: the pericarpium is a three-cornered capsule, ovate, three-celled, three-valved, opening three ways at top, covered: partitions contrary to the valves: the seeds very many, irregular, sharpish.

The species are: 1. *P. cæruleum*, Common Polemonium; 2. *P. reptans*, Creeping Polemonium, or Greek Valerian.

The first has a perennial, fibrous root: the herb smooth; the stems upright, rising to the height of eighteen or twenty inches, seldom more, leafy, panicled: the leaves alternate, unequally pinnate, many-paired; leaflets elliptic-lanceolate, quite entire: the corolla between bell-shaped and wheel-shaped, blue: the calyx bell-shaped, half-five-cleft: the filaments dilated at the base and membranaceous: capsule clothed with the calyx, ovate-globular, obsoletely three-grooved, thin, subpellucid: seeds six in each cell, in a double row, fastened to the inner angle of the cell, variously angular, eroded on the surface, of a dark rust colour. It is a native of Asia, flowering in May.

There are varieties with white flowers, with variegated flowers, and with variegated leaves.

The second species has creeping roots, by which it multiplies very fast. The leaves have seldom more than three or four pairs of leaflets, which stand at a much greater distance from each other than those of the common sort, and are of a darker green. The stalks rise nine or ten inches high, sending out branches their whole length. The flowers are produced in loose bunches, on pretty long peduncles; they are smaller than those of the common sort, and of a lighter blue colour. It is a native of America.

Culture.—These plants may be increased by seeds and parting the roots.

The seeds should be sown in the spring, upon a bed of light earth, and when the plants are pretty strong they should be pricked out into another bed of the same earth, four or five inches asunder, shading and watering them until they have taken new root; keeping them clear from weeds until the beginning of autumn, and then transplanting them into the borders of the pleasure-ground. The plants are not of long duration; but by taking them up in autumn and parting their roots they may be continued some years: but the seedling plants flower stronger than those from offsets.

The varieties can only be continued by parting the roots at the above season. They should have a fresh light soil, which is not too rich, as the roots will be apt to rot in winter, and the stripes on the leaves to go off.

The second sort may be increased by seeds or offsets in the same manner, and is equally hardy, but much less beautiful.

They afford ornament among flowery plants in the borders and other parts.

PLATE XLV.

1. PHILOX PANICULATA.

PANICLED LYCHNIDEA.

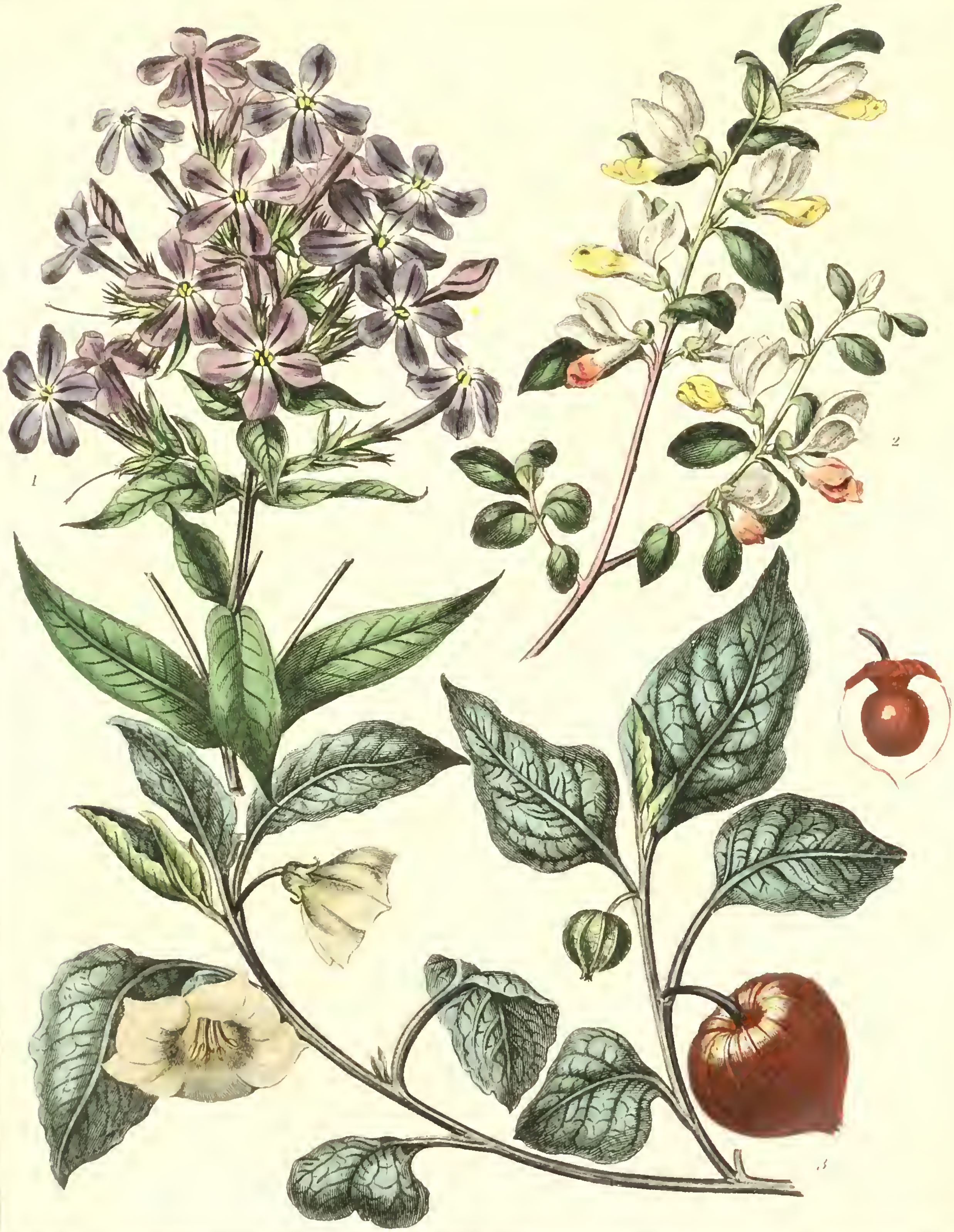
This genus comprises plants of the herbaceous, fibrous-rooted, flowery, perennial kind.

It belongs to the class and order *Pentandria Monogynia*, and ranks in the natural order of *Rotaceæ*.

The characters are: that the calyx is a one-leafed perianthium, cylindrical, ten-cornered, five-toothed, acute, permanent: the corolla one-petalled, salver-shaped: tube cylindrical, longer than the calyx, narrower below, curved in: border flat, five-parted: segments equal, blunt, shorter than the tube: the stamina have five filaments, within the tube of the corolla, two longer, one shorter: anthers in the throat of the corolla: the pistillum is a conical germ: style filiform, the length of the stamens: stigma trifid, acute: the pericarpium is an ovate capsule, three-cornered, three-celled, three-valved: the seeds solitary, ovate.

The species are: 1. *P. paniculata*, Panicled Lychnidea; 2. *P. suaveolens*, White-flowered Lychnidea; 3. *P. maculata*, Spotted-stalked Lychnidea; 4. *P. pilosa*, Hairy-leaved Lychnidea; 5. *P. Carolina*, Carolina Lychnïdea; 6. *P. glaberrima*, Smooth Lychnidea; 7. *P. divaricata*, Early-flowering Lychnidea.

The first has the stalk smooth, of a light green, about two feet high, sending out a few side branches: the leaves are near three inches long, and one broad in the middle, of a dark green, and sessile: the flowers in a terminating corymb, composed of many smaller bunches, which have each a distinct footstalk, and support a great number of flowers, which stand on short slender pedicels:



Painted by Sydᵗ Edwards London Published July 1st 1805 by G Kearsley Fleet Street Engraved by F Sansom

1 *Phlox paniculata*
Panicled Lychnidea

2 *Polygala chamæ buxus*
Box leaved Milkwort

3 *Physalis alkakengi*
Winter Cherry

the calyx short, cut almost to the bottom into five narrow acute segments: the corolla is pale purple, appearing late in July, and often followed by seeds which ripen in autumn. It is a native of North America, flowering in August and September.

The second species has white flowers, moderately sweet-scented. It is a native of North America, flowering in July and August.

The third has upright stalks, of a purplish colour, closely covered with white spots, and about three feet high: the leaves about three inches long, and one broad at their base, ending in acute points. Towards the upper part of the stalks are small branches opposite, each terminated by a small bunch of flowers; but on the top of the principal stalk is a long loose spike of flowers, composed of small bunches from the axils at each joint; each cluster having one common peduncle near an inch long, but the pedicels are short. The flowers are of a bright purple colour, and appear late in July: if the season be temperate, or the soil moist, they continue in beauty a great part of August, but rarely perfect seeds in this climate. It is a native of North America, flowering in August.

The fourth species has the stalks about a foot high: the leaves narrow-lanceolate, ending in acute points, sessile, a little hairy: the calyx cut into acute segments almost to the bottom: the tube of the corolla slender and pretty long, cut at top into five ovate spreading segments: the flowers light purple, appearing at the end of June, but seldom producing seeds in this climate. It is a native of North America.

The fifth resembles the sixth, but the stem is three times as high, and somewhat rugged: the leaves wider, and ovate-lanceolate: the corymb consisting of numerous flowers, with several peduncles from the uppermost axils of the leaves, erect, and fastigiate into a sort of corymb of a dark purple colour. It grows naturally in Carolina, flowering from July to September.

The sixth species has the stalks near a foot and half high, dividing into three or four small branches towards the top, each terminated by a corymb of flowers: the lower leaves opposite, three inches long, and near half an inch broad at the base, ending in long acute points, smooth and sessile; the upper ones are alternate: the tube of the corolla twice the length of the calyx; segments of the border roundish, spreading, of a light purple colour: the flowers appear in June, but seldom produce seeds in this climate. It is a native of North America, flowering from June to August.

The seventh species has the stems almost upright, simple, and then divided into two branches: the leaves opposite on a simple stem, in five oppositions, softish, rugged; the upper ones alternate: the flowers from the partings of the stem and the axils of the alternate leaves, two together on separate pedicels: the calyx five-parted: the corollas pale blue, with a crooked tube: the flowers appear at the end of May, or beginning of June, but are rarely succeeded by seeds in this climate. It grows naturally in North America.

Culture.—These are generally increased by parting their roots, as they do not often produce seeds in this climate. The best time for performing this is in autumn, when the stalks begin to decay. The roots should not, however, be divided into too small heads, when they are expected to flower well the following summer; nor should they be parted oftener than every other year, as, when they are too often removed and parted, it greatly weakens the roots, so that they send out but few stalks, and those so weak as not to rise their usual height, and the bunches of flowers are much smaller.

The large root offsets may be planted out at once where they are to remain; but the small ones in nursery-rows, for further increase in size.

When the roots are parted and removed, it is a good way to lay some old tan, or mulch, upon the surface of the ground about their roots, to prevent the frost from penetrating; for, as they will have put out new roots before winter, the frost, when it is severe, often kills the fibres, whereby the plants suffer greatly, and are sometimes wholly destroyed.

The first and sixth sorts may be increased pretty expeditiously by their spreading roots, but the others but slowly this way; of course it is a better method to have recourse to cuttings. The best season for planting the cuttings is about the end of April, or the beginning of the following month, when the young shoots from the roots, which are about two inches high, should be cut off close to the ground, and their tops shortened, being then planted on a border of light loamy earth, and shaded from the sun until they have taken root; or if they are planted pretty close together, and covered with bell or hand-glasses, or in pots, shading them every day from the sun, they will put out roots in five or six weeks; but on their beginning to shoot, the glasses should be gradually raised to admit the free air to them, otherwise they are apt to draw up weak, and soon spoil: as soon as they are well rooted, the glasses should be taken off, and the plants inured to the open air; being soon afterwards removed into a bed of good soil, planting them about six inches distance every way, shading them from the sun, and watering till they have taken new root; after which, when kept clean from weeds, they require no other care till autumn, when they should be removed into the borders or other parts, where they are designed to remain.

When some of the plants are put into pots, and sheltered under a hot-bed frame in winter, they flower stronger the following summer.

These plants succeed best in a moist rich mellow soil, growing taller, and flowering more strongly and in larger bunches. In poor dry soils they often die during the summer, when not constantly watered with care.

Some of the plants afford ornament in the borders, clumps, and other parts of pleasure-grounds; and those planted in pots to be placed in court-yards, or other places near the habitation, when they are in beauty, and being mixed with other flowers, are highly ornamental.

2. POLYGALA CHAMÆBUXUS.

BOX-LEAVED MILKWORT.

This genus contains plants of the woody, under shrubby, and herbaceous perennial kinds.

It belongs to the class and order *Diadelphia Octandria*, and ranks in the natural order of *Lomentaceæ*.

The characters are: that the calyx is a five-leaved, small perianth: leaflets ovate, acute: two below the corolla, one above that, and two in the middle, subovate, flat, very large, coloured, (the wings) permanent: the corolla subpapilionaceous: standard almost cylindrical, tubular, short, with a small reflex mouth, bifid: wings; keel concave, compressed, ventricose towards the tip: appendix of the keel, in most of the species two three-parted pencil-shaped bodies, fastened to the keel towards the tip: the stamina have diadelphous filaments (eight connected) enclosed within the keel: anthers eight, simple: the pistillum is an oblong germ: style simple, erect: stigma terminating, thickish, bifid: the pericarpium is an obcordate capsule, compressed with an acute margin, two-celled, two-valved: partition contrary to the valves; opening at each margin: the seeds solitary, ovate (with a glandular umbilicus).

The species cultivated are: 1. *P. myrtifolia*, Myrtle-leaved Milkwort; 2. *P. Chamæbuxus*, Box-leaved Milk-wort.

The first has a shrubby stem, covered with a smooth brown bark, rising four or five feet high, and sending out several spreading branches towards the top: the leaves about an inch long and a quarter of an inch broad, lucid green, and sessile. The flowers are produced at the ends of the branches: they are large, white on the outside, but of a bright purple within: wings expanded wide, and standard incurved. It continues flowering most part of the summer:

each cell of the seed-vessel contains one hard smooth shining seed. It grows naturally at the Cape of Good Hope.

The second species rises with a slender, branching, woody stalk, about a foot high, when it grows upon good ground, but on a rocky soil it is seldom more than half that height. The branches are closely garnished with stiff smooth leaves, of a lucid green: from between the leaves, towards the top of the branches, the flowers come out upon very short peduncles; they are white on the outside, but within are of a purplish colour mixed with yellow, and have a grateful odour. According to Martyn, it is an elegant little evergreen shrub, of low growth, with leaves like those of Box, producing flowers from May to October, but most plentifully in May and June: each flower stands on a peduncle, proceeding from a kind of triphyllous cup, formed of floral leaves. It is a native of Austria, &c.

Culture.—The first sort may be increased by seeds, which should be sown in small pots, filled with light loamy earth; soon after they are ripe, placing them where they may have the morning sun only till October, when they should be placed under a hot-bed frame, and be plunged into old tanners' bark which has lost its heat, where they may be defended from frost during the winter, and in the spring the pots should be plunged into a moderate hot-bed, which will bring up the plants. When these appear, they should not be too tenderly treated, but have a large share of free air admitted to them; when they are fit to transplant, they should be carefully shaken out of the pots and separated, planting each into a small pot filled with soft loamy earth, and plunged into a very moderate hot-bed, to forward their taking new root, shading them from the sun, and gently refreshing them with water as they may require. When they are rooted, they must be gradually inured to the open air, and in June they may be placed abroad in a sheltered situation, where they may remain till the middle or latter end of October, according as the season proves favourable; then they must be removed into the green-house; and treated in the same way as the Orange-tree, being careful not to give them too much wet during the winter season.

The second sort was formerly thought difficult to raise by seeds; but at present it is readily increased by parting its creeping roots, and planting them in bog earth, on a shady border, where it thrives very well, and spawns much.

The first affords variety when set out among other potted plants of the green-house kind; and the latter, in the borders, &c.

3. PHYSALIS ALKEKENGI.

WINTER CHERRY.

THIS genus comprises plants of the herbaceous and shrubby ornamental kind.

It belongs to the class and order *Pentandria Monogynia*, and ranks in the natural order of *Luridæ*.

The characters are: that the calyx is a one-leafed perianthium, ventricose, half-five-cleft, small, five-cornered, with acuminate segments, permanent: the corolla one-petalled, wheel-shaped: tube very short: border half-five-cleft, large, plaited: segments wide, acute: the stamina have five filaments, awl-shaped, very small, converging: anthers erect, converging: the pistillum is a roundish germ: style filiform, generally longer than the stamens: stigma blunt: the pericarpium is a subglobular berry, two-celled, small, within a very large, inflated, closed, five-cornered, coloured calyx: the receptacle kidney-form, doubled: the seeds very many, kidney-form, compressed.

The species are: 1. *P. angulata*, Tooth-leaved Winter Cherry; 2. *P. pubescens*, Woolly Winter Cherry; 3. *P. Alkekengi*, Common Winter Cherry; 4. *P. Pensylvanica*, Pennsylvanian Winter Cherry; 5. *P. viscosa*, Clammy Winter Cherry; 6. *P. somnifera*, Clustered Winter Cherry; 7. *P. flexuosa*, Fexuous Italian Winter Cherry; 8. *P.*

arborescens, Tree-like Physalis, or Winter Cherry; 9. *P. Curassavica*, Curassavian Winter Cherry.

The first has a straight stem, the thickness of the little finger, about a foot high, three-cornered below, four-cornered above, as are also the branches, which come out obliquely from top to bottom, in alternate order, and are thicker at the base: the lower leaves wider and rounder than those about the middle of the stem, and these larger than those of the branches, deeply toothed or jagged: the flowers five-cornered, of an extremely pale yellow colour, with spots of a darker yellow at the base. It is a native of both the Indies, &c.

There is a variety which is taller, with entire leaves, smaller flowers of a paler yellow colour.

The second species branches out very wide close to the ground, and the branches frequently lie upon it; they are angular and full of joints, dividing again into smaller branches: the leaves are on pretty long footstalks, about three inches long and almost two broad, having several acute indentures on their edges: the flowers produced on the side of the branches upon short, slender, nodding peduncles; they are of an herbaceous yellow colour with dark bottoms, and are succeeded by large, swelling bladders, of a light green, inclosing berries as large as common cherries, which are yellowish when ripe. It flowers in July, and is a native of Virginia.

These are both annual plants.

The third has perennial roots, creeping to a great distance: they shoot up many stalks in the spring a foot high or more: the leaves of various shapes, some angular and obtuse, others oblong and acute-pointed, of a dark green, on long footstalks: the flowers axillary, on slender peduncles, white, appearing in July; the berry round, the size of a small cherry, enclosed in the inflated calyx, which turns of a deep red in the autumn. It is a native of the South of Europe, &c.

The fourth species has many procumbent or erect stems, scarcely a foot in height, somewhat flexuose, roundish, or obscurely angular on the top, at the flowers branched, having an obscure down scattered over them: the leaves are alternate, ovate, blunt, serrate-repand, almost naked above, obscurely tomentose underneath, next the flowers in pairs: the flowers axillary on very short peduncles, larger than those of the common sort, and of a pale yellow colour. They are succeeded by very small yellowish berries, which ripen in the autumn when the season proves warm. It is a native of North America, and flowers from July to September.

The fifth has a creeping root, sending up a great number of smooth stalks, about a foot high, dividing towards the top into small spreading branches: the leaves heart-shaped or ovate, about three inches long, and two broad near their base, entire, rough to the touch, of a pale yellowish green, alternate, on pretty long footstalks: the flowers are towards the top, axillary, on long slender peduncles, of a dirty yellow colour with purple bottoms. They appear in June and July, and are succeeded by viscous berries about the size of the common sort, of an herbaceous yellow colour, enclosed in a light green swelling bladder. It is a native of America.

The sixth species rises with a shrubby stalk, near three feet high, dividing into several branches which grow erect, and are covered with a woolly down: the leaves ovate-lanceolate, almost three inches long, and an inch and a half broad in the middle, downy, and on short petioles: the flowers small, of an herbaceous white colour, sitting very close to the branches, and succeeded by small berries nearly of the same size as the common winter cherry, and red when ripe. It is a native of Spain, Sicily, &c. flowering in July and August.

The seventh rises to the height of five or six feet, sending out long flexuose branches covered with a gray bark: the leaves oblong-ovate, often placed opposite, sometimes by threes round the branches, to which they sit close: the flowers in clusters at the base of the petioles, small, of an herbaceous yellow colour: they are succeeded by round purplish berries having ten cells, each including one seed. It flowers in July and August, but not unless the season is warm. It is a native of the East Indies.

The eighth species has a shrubby stalk, ten or twelve feet high, dividing towards the top into several small branches, covered with a gray hairy bark: leaves on the lower part alternate, but towards the end of the branches opposite; the lower leaves from three to four inches long, and two broad in the middle, drawing to a point at both ends: they are of a pale green, and downy: the flowers from the axils towards the end of the branches, one or two at the same joint opposite, on short nodding peduncles; are small, of a pale dirty yellow colour, with purple bottoms: berries small, spherical, red, enclosed in an oval dark purple bladder. It flowers in June and July.

The ninth has a perennial creeping root: the stalks several, slender, about a foot high, becoming somewhat woody, but seldom lasting above two years; the leaves alternate, on short footstalks; they are about two inches long, and an inch and half broad: the flowers axillary towards the top, on short slender peduncles: petals small, sulphur-coloured, with dark purple bottoms: they appear in July and August, but are rarely succeeded by berries in this climate. It is a native of Curassao in the West Indies.

Culture.—These plants are all capable of being increased by seeds; the second, third, fourth, and fifth sorts, also by parting the roots; the sixth, seventh, eighth, and ninth, likewise by cuttings.

In the first sort, the seed should be sown in the early spring, as April, in pots of light earth, plunging them in a moderate hot-bed. When the plants have acquired a few inches in growth they should be removed into separate pots, gradually inuring them to the open air, in order that they may be removed with balls into the clumps or borders. But it is probably a better method to sow them in the latter end of May in the places where they are to remain, as they do not bear transplanting well.

They must be raised annually.

In the herbaceous kinds the seeds should be sown in the autumn as soon as they are ripe, or early in the spring, in the beds, borders, or clumps where they are to remain; or they may be transplanted into other beds, to remain till the following autumn, when they may be removed to the situations where they are to remain.

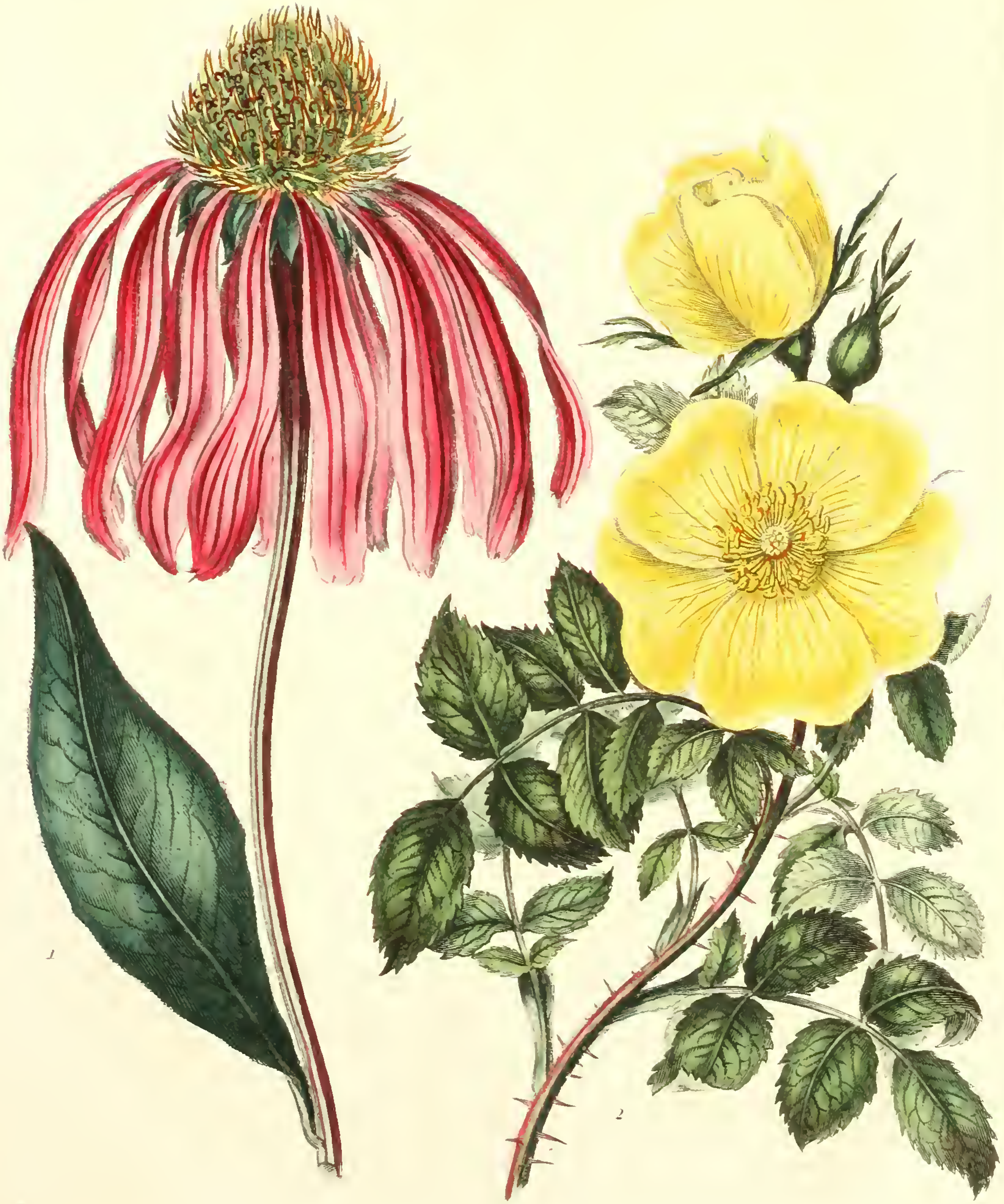
The roots may be parted either in the early autumn or spring season, when the weather is mild. The divided parts should have root-fibres left at the bottoms and a bud in each at the tops, in order to their succeeding properly.

In the sixth and seventh sorts, the seeds should be sown in pots of light mould in the early spring and plunged in a mild hot-bed. When the plants have had a little growth they should be pricked out into separate small pots, proper shade and water being given; being afterwards managed as the shrubby exotics of less tender plants.

They may likewise be raised from cuttings made in the later spring or summer months, which should be placed in pots of light mould and plunged in the hot-bed, due shade and water being given till they have stricken root.

And the two last sorts may be raised from seeds or cuttings in the same way, by the aid of the bark hot-bed of the stove.

The first and the other herbaceous sorts are curious ornamental plants in the borders, clumps, and other parts of pleasure-grounds, and the four best shrubby sorts in the green-house and stove collections.



Painted by Syd. Edwards   London Publiſhed June 1 1805 by G. Kearsley Fleet Street   Engraved by F. Sansom

1 Rudbeckia purpurea.
Purple Rudbeckia

2 Rosa lutea
Single yellow Rose

PLATE XLVI.

1. RUDBECKIA PURPUREA.

PURPLE RUDBECKIA.

This genus contains plants of the herbaceous biennial and perennial kinds.

It belongs to the class and order *Syngenesia Polygamia Frustranea*, and ranks in the natural order of *Compositæ Oppositifoliæ*.

The characters are: that the calyx is common with a double row of scales; scales flat, widish, curtailed, six in each row: the corolla compound radiate: corollets hermaphrodite, numerous, in a conical disk; females about twelve, very long in the ray: proper of the hermaphrodite, tubular-funnel-form, with a five-toothed border: female ligulate, lanceolate, with two or three teeth, flat, pendulous: the stamina in the hermaphrodites: filaments five, capillary, very short: anther cylindrical, tubular: the pistillum in the hermaphrodites: germ four-corned: style filiform, the length of the corollet: stigma two-parted, revolute: in the females: germ very small: style none: stigma none: there is no pericarpium: calyx unchanged: the seeds in the hermaphrodites solitary, oblong, crowned with a membranaceous four-toothed rim: in the females none: the receptacle chaffy, conical, longer than the common calyx: chaffs the length of the seeds, erect, channelled-concave, deciduous.

The species cultivated are: 1. *R. laciniata*, Broad Jagged-leaved Rudbeckia; 2. *R. digitata*, Narrow Jagged-leaved Rudbeckia; 3. *R. hirta*, Hairy Rudbeckia: 4. R. *purpurea*, Purple Rudbeckia; 5. *R. angustifolia*, Narrow Simple-leaved Rudbeckia; 6. *R. triloba*, Three-lobed Rudbeckia.

The first is by some divided into two species, which are thus described: the root of the former is perennial, but the stalk is annual: the lower leaves are composed of five broad lobes, deeply cut into acute points, and some of them jagged almost to the midrib; the outer lobe is frequently cut into three deep segments: the stalks rise seven or eight feet high, and divide at top into several branches: are smooth, green, and have single, oval heart-shaped leaves, some indented on their edges, others entire: the peduncles naked, terminated by a single flower with yellow rays, like the sun-flower, but smaller: the latter is also perennial, and has smooth green stalks; but they rise higher: the leaves have all five lobes, which are much narrower, end with sharper points, and are very acutely indented on their sides: the flowers are smaller, and the petals narrower. They are both natives of North America, flowering here in July.

The second species has a perennial root like the former: the leaves at bottom are composed of seven or nine lobes, some entire, others jagged to the midrib; they are of a dark green and smooth: the stalks rise six feet high, and divide into many branches; they are of a purple or iron colour, and very smooth: the stem-leaves towards the bottom are hand-shaped, and composed of five lobes; higher up they have but three lobes, and at top the leaves are single: the flowers are smaller than those of the preceding, but of the same shape and colour. It is a native of North America, flowering in August and September.

In the third, the root continues four or five years: the leaves are oblong, ovate, and hairy: the stalks rise a foot and half high, and have one or two leaves near the bottom: the peduncle is naked near a foot in length, and is terminated by one pretty large yellow flower, shaped like the sun-flower: the florets of the ray are very stiff, and slightly indented at their points: the disk is very prominent, and of a dark purple colour. The flowers will continue six weeks, and there is a succession of them from the middle of July, till the frost puts a stop to them. It is a native of Virginia.

The fourth species is a perennial plant like the third. The leaves are longer and broader, are smooth, and have three veins: the peduncles are taller, and have two or three narrow leaves on each, placed alternately: on the top is one flower, with long narrow, reflexed, peach-coloured florets in the ray: the disk is very prominent, and of a dark purple colour: it flowers at the same time with the third, but the flowers are of not so long duration. It is a native of Carolina and Virginia.

The fifth has the root perennial: the stalks four or five feet high: the leaves narrow, smooth, opposite: the florets in the ray of the flower yellow, long, twelve in number: disk dark red: the scales of the calyx spreading and almost awl-shaped. It is a native of Virginia, flowering in August and September.

The sixth species is biennial: the lower leaves are divided into three lobes, but those upon the stalks are undivided; they are hairy, and shaped like those of the first sort: the stalks branch out on their sides, and are better furnished with leaves than the others: the flowers are very like those of the first sort, but smaller. It grows naturally in several parts of North America.

Culture.—All the sorts of these plants may be increased by offsets, parting the roots and seeds.

The offsets in the perennial sorts should be taken off and planted out in the early autumn: when the stems decay the roots may also be divided and planted out at the same time, or in the early spring months.

As these plants are often liable to go off soon, some should be frequently raised to keep up the stock: and as others have a tendency to become biennial, and decay without increasing the root, they should have the flower-stems cut down in the early summer, to encourage the growth of the root offsets, for slipping in the following autumn.

All the sorts may be raised from seed, and the biennial sorts must always be raised annually in that way; likewise such of the perennial kind as are biennially inclined, sowing the seeds in April, in a border of light earth, raking them in; and when the plants are two or three inches high, pricking them out in nursery-rows till autumn, then planting them out where they are to remain. They should have a light dry soil and rather warm situation.

They afford much ornament and variety in the borders and clumps, among other flowering plants.

2. ROSA LUTEA.

SINGLE YELLOW ROSE.

This genus contains plants of the deciduous flowering shrub and evergreen kind.

It belongs to the class and order *Icosandria Polygynia*, and ranks in the natural order of *Senticosæ*.

The characters are: that the calyx is a one-leafed perianth: tube ventricose, contracted at the neck; with the border spreading five-parted, globular: segments long, lanceolate-narrow (in some of them two alternate ones appendicled on both sides; two others, also alternate, naked on both sides; the fifth appendicled on one side only): the corolla has five petals, obcordate, the length of the calyx, inserted into the neck of the calyx: the stamina have very many filaments, capillary, very short, inserted into the neck of the calyx: anthers three-cornered: the pistillum has numerous germs, in the bottom of the calyx: styles as many, villose, very short, compressed close by the neck of the calyx, inserted into the side of the germ: stigmas blunt: there is no pericarpium: is a fleshy berry, turbinate, coloured, soft, one-celled, crowned with the rude segments, contracted at the neck, formed from the tube of the calyx: the seeds numerous, oblong, hispid, fastened to the inner side of the calyx.

The species cultivated are: 1. *R. lutea*, Single Yellow Rose; 2. *R. sulphurea*, Double Yellow Rose; 3. *R. blanda*, Hudson's-Bay Rose; 4. *R. cinnamomea*, Cinnamon Rose; 5. *R. arvensis*, White Dog Rose; 6. *R. pimpinnellifolia*, Small Burnet-leaved Rose; 7. *R. spino-*

sissima, Scotch Rose; 8. *R. parviflora*, Small-flowered American Rose; 9. *R. lucida*, Shining-leaved American Rose; 10. *R. Carolina*, Carolina Rose; 11. *R. villosa*, Apple Rose; 12. *R. provincialis*, Provence Rose; 13. *R. centifolia*, Hundred-leaved Rose; 14. *R. gallica*, Red Rose; 15. *R. damascena*, Damask Rose; 16. *R. sempervirens* Evergreen Rose; 17. *R. pumila*, Dwarf Austrian Rose; 18. *R. turbinata*, Frankfort Rose; 19. *R. rubiginosa*, Sweet Briar Rose; 20. *R. muscosa*, Moss Provence Rose; 21. *R. moschata*, Musk Rose; 22. *R. alpina*, Alpine Rose; 23. *R. semperflorens*, Deep-red China Rose; 24. *R. alba*, White Rose.

The first has weak stalks, which send out many slender branches closely armed with short crooked brown prickles: the leaflets two or three pairs, ovate and thin, smooth, of a light green, sharply serrate: the flowers on short peduncles, single, bright yellow, without scent. It is a native of Germany, &c.

There is a variety termed the *Austrian Rose*, which has the stalks, branches and leaves like those of the Single Yellow Rose, but the leaves are rounder. The flowers are also larger: the petals have deep indentures at their points; are of a pale yellow on the outside, and of a reddish copper colour, orange-scarlet, or Barré colour within; are single, have no scent, or a disagreeable one, and soon fall away. It has sometimes flowers entirely yellow on one branch, and copper-coloured on another.

The second species differs from the preceding, not only in the doubleness of the flowers, but in having the leaflets simply serrate, not glandular, pubescent and glaucous underneath; whereas in that they are doubly serrate, glandular and glutinous, and of a shining green colour, the stipules lacerated; the fruits hemispherical and glandular, which in the other are subglobular and smooth: the prickles on the stem are of two sorts in this; a few being larger, and many smaller. It is a native of the Levant, flowering later than that, as in July.

The third has the stems, when full grown, unarmed: the younger ones, or those of the first year, are armed with slender straight prickles bent a little back at the top: branches round, unarmed, shining, reddish: the leaflets commonly seven, oblong, sharply and almost equally serrate, smooth: the petioles smooth, generally armed with one or two spinules. It is a native of Newfoundland and Hudson's Bay, flowering from May to August.

The fourth species rises about four feet high: the branches are covered with a purplish smooth bark, and have no spines, except at the joints immediately under the leaves, where they are commonly placed by pairs; they are short and crooked: the leaflets seven, ovate, serrate, hairy on their under side: the leaves of the calyx narrow and entire: the flower small, with a scent like cinnamon, whence its name. But, according to Parkinson, the shoots are somewhat red, yet not so red as the double kind, armed with great thorns, almost like the Eglantine bush; thereby showing, as well by the multiplicity of its shoots as the quickness and height of its shooting, its wild nature: the roses are single, somewhat large, and of a pale red colour. It is a native of the South of Europe.

There is a double variety, in which the shoots are redder; the flowers small, short, thick, and double, of a pale red colour at the end of the leaves (petals), somewhat redder and brighter towards the middle. It is the smallest and earliest of the double garden roses, flowering in May.

The fifth has round, glaucous, often mahogany-coloured stems; with very long, thong-like branches, bowing, with scattered, hooked prickles, smaller than in the common Dog-Rose: the leaflets five or seven, but mostly five, ovate, pointed, smooth, simply serrate, glaucescent underneath: the petioles prickly: peduncles three or five in a terminating cyme, (rarely solitary) mahogany-coloured, covered with a glandular roughness, not all exactly from one point, accompanied by a few lanceolate bractes, and each bearing a single white flower, like the common Dog-Rose, but never red or blush-coloured, and less fragrant: fruit oblong; but in ripening it becomes globose, and deep red: the styles, as soon as they have passed through the neck of the calyx, are compacted into a cylinder, resembling a single style, terminated by a knob composed of the stigmas, which distinguishes it from the other species. It is a native of England, &c.

The sixth species has been confounded with what is commonly called the Scotch Rose; and some think it is not distinct from that. In the garden plant, according to Pallas, there are larger and setaceous prickles intermixed, and nine leaflets, the lower ones smaller. The flowers are white, and the segments of the calyx entire.

And the Siberian shrub is very elegant, a foot and half or at most two feet in height; the trunk thorny all over, the thickness of the little finger, very much branched, the branches collected into an ovate form: the spines on the trunk and branches very frequent, bristle-shaped, transverse or reclining, gray: the leaves very small, on red petioles, sometimes smooth, sometimes with small prickles on them: the stipules very narrow with wider earlets, external and serrate: the leaflets commonly seven, but sometimes nine or five, the size of the little finger nail, oval, cut round, sharply double-serrate, stiffish, rugged, more or less retuse, on some shrubs rather acute: the peduncles sometimes rough, sometimes smooth, with a ternate and simple leaf, almost to the flower: the fruit globose, smooth, and when ripe black, dry and insipid, being crowned with the segments of the calyx. It is a native of the South of Europe, as well as Asia, flowering here in May and June.

The seventh has its stems about two feet high, upright, much branched, with numerous straight, unequal, very slender needle-like prickles, on the young branches, which often disappear from the old ones: the leaflets seven or nine, small, roundish, blunt, serrate, smooth, sessile: their common petiole is sometimes prickly: the peduncles solitary, one-flowered, smooth, or very seldom prickly: the stipules small, halbert-shaped, toothed: the tube of the calyx almost hemispherical, smooth: the segments are entire: the petals white or cream-coloured, yellow at the base, delicately fragrant, sometimes striped with red: the fruit globose, deep reed, black when quite ripe, smooth, but sometimes somewhat prickly. It is a native of most parts of Europe.

There are several varieties, as the Striped-flowered, or with variegated flowers, red striped with white.

The Red Scotch Rose, which seldom rises more than a foot high:

the stalks are covered with a brown bark, and are closely armed with small spines; the leaves are very small; the flowers are also small, sessile, and of a livid red colour: the fruit is round, of a deep purple colour inclining to black when ripe.

And, according to Withering, there is also a variety with prickly peduncles, and cream-coloured flowers, changing to white.

Lawrence likewise mentions a double Scotch Rose.

The eighth species very much resembles the two following sorts; but differs in having the stem two feet high, the petioles hairy at the top, and the flowers in pairs. It rises with several slender stems to the height of two or three feet, covered with a brownish green bark, and armed with a few sharp spines: the leaflets are seven or nine, oblong-ovate and sharply serrate: the leaves of the flower-cup have often linear leafy elongations: the corolla is single and of a pale reddish colour.

There is a variety with a double flower.

The ninth rises with several smooth stalks to the height of five or six feet: the young branches are covered with a smooth purple bark: the leaves are composed of four or five pairs of spear-shaped leaflets, smooth on both sides, of a lucid green on the upper surface, but pale on the under, and deeply serrate: the segments of the calyx long, narrow and entire: the flowers of a livid red colour, single, with little scent, appearing in July.

The tenth species has the stem five or six feet high, smooth: the stipular prickles two: the leaflets seven, oblong-ovate or nearly lanceolate, smooth, not shining, but opaque, serrate, paler underneath: the petioles prickly: the peduncles several, branched, forming a corymb, unarmed, with glandular hairs scattered over them: the leaflets of the calyx undivided, hispid on the outside: the petals obcordate, red. It is a sort that flowers late; and, like the two preceding, a native of North America.

The eleventh grows upright to the height of four feet or more: the branches are upright and short: the prickles on the stem and branches scattered, small, awl-shaped, nearly straight: the leaflets seven, elliptical, bluntish, clothed on both sides with short velvet-like down, fragrant when rubbed, their serratures fringed with glands: the petioles downy, prickly, glandular: the peduncles terminating, mostly solitary, one-flowered, rough with rigid glandular bristles: the germ globular, bristly: the segments of the calyx long, downy, prickly on the outside: the corolla of a full rose-colour, not very odoriferous: the fruit globular, larger than in any other sort, and for the most part bristly and blood-red. It is found in Europe and Asia, and known as the cultivated sort in plantations, &c., both in a single and double state.

The fruit has a pleasant acid pulp surrounding the seeds, and is sometimes made into a conserve or sweetmeat, and served up at table in deserts, &c.

The twelfth species is well known in gardens, and one of the most beautiful sorts: the flowers are sometimes very large, and the petals closely folded over each other, like cabbages, whence it is called the Cabbage Rose: the flowers have the most fragrant odour of all the sorts.

According to Parkinson, the Great Double-Damask Provence, or Holland Rose, has its bark of a reddish or brown colour: the leaves likewise more reddish than in others, and somewhat larger. It usually grows very like the Damask Rose, and much to the same height: the flowers are of the same deep blush colour, or rather somewhat deeper, but much thicker, broader, and more double by three parts almost, the outer leaves turning back, when the flower hath stood long blown, the middle part itself being folded hard with small leaves: the scent comes nearest the Damask Rose, but is much short of it.

There are several varieties, as the Red Provence Rose: the stem and branches are not so great as those of the other, but greener, the bark not being so red: the flowers are not so large, thick and double, but of a little deeper damask or blush colour, turning to red, but not coming near the full colour of the best Red Rose: nor is the scent so sweet as that of the Damask Provence, but coming near that of the ordinary Red Rose. It is not so plentiful in bearing as the Damask Provence.

The Blush Provence Rose, in which the stalks rise from three to four feet high, and are unarmed: the leaves are hairy on their under side: the peduncles have some small spines: the segments of the calyx are semi-pinnate: the corolla has five or six rows of petals, which are large, and spread open; they are of a pale blush colour, and have a musky scent.

The White Provence Rose, which differs only in the colour of the flowers.

The Great and Small Dwarf Provence Roses, called Rose de Meaux, differ from each other in little except size: the smaller of the two is generally known by nursery-men and gardeners by the name of Pompone Rose. It throws out numerous stems, which rarely exceed a foot or a foot and half in height; usually straight, rigid, and very prickly: the flowers very small, and distinguished by the brilliant colour of the central petals, appearing in June.

All the sorts flower from July to August.

The thirteenth rises with prickly stalks about three feet high: the leaves have three or five leaflets, which are large, oval, smooth, and of a dark green with purple edges: the peduncles are set with brown bristly hairs: the segments of the calyx are smooth and semipinnate: the flowers are very double, and of a deep red colour, but have little scent. It is a native of China.

The varieties are very numerous; as the Dutch Hundred-leaved Rose; the Blush Hundred-leaved Rose; the Singleton's Hundred-leaved Rose.

The Single and Double Velvet Rose, which, according to Parkinson, has the old stem covered with a dark-coloured bark, but the young shoots of a sad green, with few or no thorns: the leaves are of a sadder green than in most roses, and very often seven on a stalk: the flower is single; or double with two rows of petals, the outer larger, of a deep red like crimson velvet; or more double, with sixteen petals or more in a flower, most of them equal: they have all less scent than the ordinary Red Rose.

The Burgundy Rose, which is an elegant little plant, not more than a foot or eighteen inches in height.

The Sultan Rose; the Stepney Rose; the Gurnet Rose; the Bishop Rose; and the Lisbon Rose.

The fourteenth species has the stalks growing erect, and scarce any spines; they rise from three to four feet high: the leaves are composed of three or five large oval leaflets, which are hairy on their under side: the leaves of the calyx are undivided: the flowers are large, but not very double, spread open wide, and decay soon; they are of a deep red colour, and have an agreeable scent. "Parkinson gives the Red Rose the epithet of English, as this and the White are the most antient and known Roses to the country, and assumed by our precedent kings of all others, to be cognizances of their dignity, and because the Red is more frequent and used in England than in other places. The flowers, he says, vary in colour; some are of an orient red or deep crimson colour, and very double, although never so double as the White; some again are paler, tending somewhat to a damask; and some are of so pale a red, as that they are rather the colour of the Canker Rose; yet all for the most part with larger leaves than the damask, and with many more yellow threads (stamens) in the middle: the scent is much better than in the White, but not comparable to the excellency of the Damask Rose; yet this, being well dried and kept, will hold both colour and scent longer than the Damask."

There are several varieties: as the Red Officinal Rose; the Mundi Rose, which has the flowers very elegantly striped or variegated with red and white; in other circumstances it so perfectly resembles the Red Rose, that there can be no doubt of its being a variety of that; indeed it frequently happens that a Red Rose or two appears on the same plant with the variegated flowers.

The Childing Rose, the Marbled Rose, and the Double Virgin Rose, which have great affinity with each other, according to Miller.

The fifteenth rises with prickly stalks eight or ten feet high, covered with a greenish bark, and armed with short prickles: the leaves are composed of five or seven oval leaflets, dark green above, but pale underneath; the borders frequently turn brown and are slightly serrate; the peduncles are set with prickly hairs; the calyxes are semipinnate and hairy; the corolla is of a soft pale red, and not very double, but has an agreeable odour; the heps are long and smooth. It is a native of the South of France, &c.

There are several varieties: as the Red Damask Rose, the Blush Damask Rose, which differ only in the shade of colour.

The York and Lancaster Rose, which agrees with the Damask in stalk, leaf, &c., differing only in the flower being variegated with white stripes. Mr. Hart's Rose has the white stripes more distinct: the flowers in these being less double than in several others, are frequently succeeded by fruit, and have ripe seeds, from which other varieties may be obtained. According to Parkinson, "sometimes one half of the petal is of a pale whitish colour, and the other half of a paler damask than common; or one petal is white or striped with white, and the other half blush or striped with blush; sometimes also striped or spotted over, and at other times little or no stripes or marks, and the longer it remains blown open in the sun, the paler and the fewer stripes, marks or spots will be seen in it. The smell is of a sweet Damask Rose scent."

The Red Monthly Rose, the White Monthly Rose, which are so called from their continuing to blow in succession during the greater part of the summer; not that they blow in every month, as the name implies. They are in every respect like the Damask Rose; unless it be that they are more full of prickles than that.

The Blush Belgic Rose, which rises about three feet high, with prickly stalks: the leaves are composed of five or seven leaflets, which are oval, hairy on their under side, and slightly serrate: the peduncles and calyxes are hairy, and without prickles; the calyxes are large and semipinnate; the flowers very double, of a pale flesh colour, with little scent, generally in great quantities.

The Red Belgic Rose, which differs only in having the colour of the flower a deep red.

The Great Royal Rose, and the Imperial Blush Damask Rose.

The sixteenth species has slender stalks which trail upon the ground unless they are supported, and if trained up to a pole or the stem of a tree will rise twelve or fourteen feet high; they are armed with crooked reddish spines, and have small leaves, with seven oval acute leaflets, of a lucid green, and serrate: the leaves continue on all the year: the flowers are small, single, white, and have a musky odour. In their natural place of growth they continue in succession great part of the year, but their time of flowering in this climate is June. It is a native of Germany.

The seventeenth has the branches with a great abundance of prickles, which fall off on the stems: the fruits are large and pear-shaped. It is a native of Austria and Italy.

The eighteenth species has the young shoots covered with a pale purplish bark, set with a number of small prickles like hairs: the older branches have but few thorns: the fruit is very large: the flower is thick and double as a red-rose, but so strong swelling in the bud, that many of them break before they can be full blown; and then they are of a pale red-rose colour, between a red and a damask, with a very thick broad hard umbone of short yellow threads in the middle: the segments of the calyx are quite entire: the smell is nearest a red rose.

The nineteenth has yellow hooked prickles on the stem, which is five or six feet high: the leaflets seven, very fragrant, elliptic or subovate, above smooth and wrinkled, underneath rust-coloured with resinous atoms or little dots: serratures glandular: the petioles also glandular and prickly: the peduncles muricate and in corymbs: the calyx glandular: the petals rose-colour, white at the base: the fruit scarlet, muricate, but sometimes smooth, farinaceous, insipid.

The cultivated plant grows larger and more erect: the leaves are bigger and much sweeter than in the wild one, the rusty colour of them disappears, and the whole puts on a more vigorous appearance: the sweet scent is supposed to proceed from the gland. It is a native of most parts of Europe.

There are varieties with double flowers: as the Common Double Sweet Briar, the Mossy Double Sweet Briar, the Evergreen Double

Sweet Briar, the Marbled Doubled Sweet Briar, the Red Double Sweet Briar, the Royal Sweet Briar, and the Yellow Sweet Briar.

The twentieth species, which is mostly denominated the Moss Rose, from the moss-like pubescence on the calyx, has the stalks and branches closely armed with brown spines: the peduncles and calyx are covered with long hair-like moss: the flowers are of an elegant crimson colour, and have a most agreeable odour. It is known to us only in its double state, and the country to which we are indebted for it is not ascertained.

The twenty-first, or Musk Rose, rises with weak stalks to the height of ten or twelve feet, covered with a smooth greenish bark, and armed with short strong spines: the leaflets seven, light-green and serrate: the flowers in large bunches, in form of umbels, at the end of the branches, are white, and have a fine musky odour, appearing in July and August, and continuing in succession till the frost stops them. The stalks are too weak to support themselves. There is a variety with double flowers.

The editor of Miller's Dictionary considers the Evergreen Musk Rose of Miller to be the same with this.

The twenty-second species is a low shrub, with reddish-brown stems, the lower half or thereabouts of which is covered with straight awl-shaped slender white not pungent prickles; the upper part is quite naked: the stipules ciliate-glandular at the edge: the petioles hispid, and glandular: the leaflets commonly seven, smooth on both sides, ovate, biserrate, ciliate, glandular: the peduncles naked, unarmed: flowers solitary, red, middle-sized. It is a native of the Alps, &c. flowering in June and July.

The twenty-third has a height seldom exceeding three feet: the flowers large in proportion to the plant, semidouble, with great richness of colour (dark red) uniting a most delightful fragrance, coming out in succession during the greater part of the year, only more sparingly in the winter months: the segments of the calyx leafy at the end, one larger than the rest: the germs and peduncles sometimes, but rarely, smooth. It is a native of China.

The twenty-fourth species in its wild state has ovate leaves, smooth and deep green above, paler and slightly hairy underneath, unequally serrate and blunt: the stem and petioles villose, prickly: the peduncles solitary, long, hispid: fruits ovate, smooth, but more frequently having a few slender prickles on them: calyxes smooth, green, half-pinnate. It is a native of Europe, China, &c.

According to Parkinson, there are two varieties of the White Garden Rose; one attaining sometimes the height of eight or ten feet, with a stock of a great bigness, the other seldom higher than Damask Rose. Both have somewhat smaller and whiter-green leaves than in many other roses, five most usually on a stalk, and paler underneath; as also a whiter-green bark, armed with short prickles. The flowers in the one are whitish, with an eye of blush, especially towards the bottom, very double, and for the most part not opening so fully as the Red or Damask Rose. In the other more white, less double, and opening more. Some have only two or three rows of petals; and all have little or no smell.

Culture.—In all the sorts the increase may be effected by suckers, layers, or by budding upon stocks of other sorts of roses; but this last method is only practised for some peculiar sorts, which do not grow well upon their own stocks, and send forth suckers sparingly. Where more sorts than one are to be had upon the same plant, such sorts only should be budded upon the same stock as are nearly equal in their manner of growth, otherwise the strong one will draw all the nourishment from the weaker.

The suckers should be taken off in October, and planted out either in nursery-rows, or the places where they are to remain; as where they are permitted to stand upon the roots of the old plants more than one year, they grow woody, and do not form so good roots as if planted out the first year.

The best method to obtain good-rooted plants is to lay down the young branches in autumn, which will take good root by the autumn following; especially when watered in dry weather; when they may be taken off from the old plants, and be planted out where they are to remain. The seeds are sometimes sown in the autumn, to produce new varieties, in beds of light mellow earth, or in drills, especially for the Common Sweet Briar kinds, and for raising hedges of them.

Almost all the sorts delight in a rich moist soil and an open situation, in which they produce a greater quantity of flowers, and those much fairer, than when they are upon a dry soil, or in a shady situation. The pruning which they afterwards require is only to cut out their dead wood, and take off all the suckers, which should be done every autumn; and if there are any very luxuriant branches, which draw the nourishment from the other parts of the plant, they should be taken out, or shortened, to cause them to produce more branches, if there be occasion for them to supply a vacancy; but it is best to avoid crowding them with branches, which is as injurious to these plants as to fruit-trees; for, if the branches have not equal benefit from the sun and air, they will not produce their flowers so strong, or in so great plenty, as when they are more open, and better exposed to the sun, so as to have a more free circulation of air. As the Moss Provence Rose seldom sends out suckers, and does not strike very freely by layers; it is often increased by budding it upon stocks of the other sorts; but the plants are best when raised from layers.

The best sort for flowering early and late is the Monthly, next to which in flowering in the open air is the Cinnamon, which is immediately followed by the Damask Rose, then the Blush, York, and Lancaster; after which, the Provence, Dutch Hundred-leaved, White, and most other sorts: and the latest sorts are the Virginia and Musk Roses, which, if planted in a shady situation, seldom flower until September: and, if the autumn proves mild, continue often till the middle of October. And the plants of the two sorts of Musk Roses should be placed against a wall, pale, or other building, that their branches may be supported, otherwise they are so slender and weak as to trail upon the ground. These plants should not be pruned until spring, because their branches are somewhat tender; so that when they are cut in winter, they often die after the knife; these produce their flowers at the extremity of the same year's shoots in large bunches, so that their branches must not be shortened in the summer, lest the flowers should be cut off. The shrubs will grow to be ten or twelve feet high, and must not be checked in their growth, if intended to flower well. They are all highly ornamental plants, mostly for the shrubbery borders and clumps, being planted according to their habits of growth.

PLATE XLVII.

1. RHODODENDRON PONTICUM.

PONTIC RHODODENDRON.

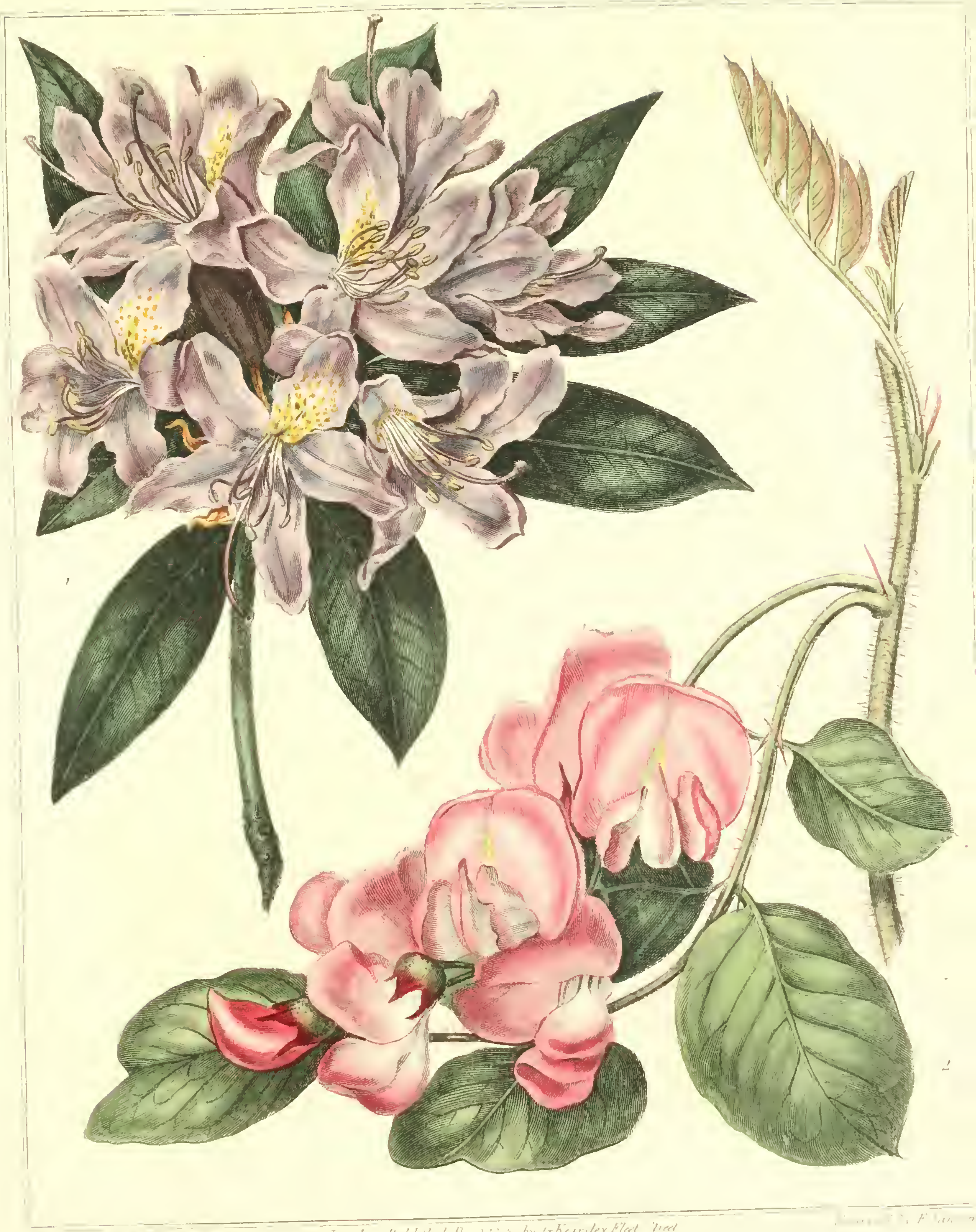
This genus contains plants of the hardy, deciduous, and evergreen, flowering, shrubby kinds, Dwarf Rose-bay.

It belongs to the class and order *Decandria Monogynia*, and ranks in the natural order of *Bicornes*.

The characters are: that the calyx is a five-parted permanent perianth: the corolla one-petalled, wheel-funnel-form: border spreading, with rounded segments: the stamina have ten filiform filaments, almost the length of the corolla, declined. Anthers oval: the pistillum is a five-cornered retuse germ. Style filiform, the length of the corolla. Stigma obtuse: the pericarpium is an ovate capsule, subangular, five-celled, divisible into five parts: the seeds numerous, very small.

The species are: 1. *R. ferrugineum*, Rusty-leaved Rhododendron; 2. *R. hirsutum*, Hairy Rhododendron; 3. *R. chamæcistus*, Dwarf Rhododendron, or Rose-bay; 4. *R. ponticum*, Purple Rhododendron; 5. *R. maximum*, Broad-leaved Rhododendron.

The first rises with a shrubby stalk near three feet high, sending out many irregular branches, covered with a purplish bark. The leaves are lanceolate, an inch and half long, and half an inch broad in the middle, entire, with reflexed borders, lucid green on their upper surface, and rusty-coloured underneath, placed all round the branches without order. The flowers are produced in round bunches at the ends of the branches: the corolla is funnel-shaped with a short tube, and is cut into five obtuse segments at the brim, spreading a little open, and of a pale rose colour. It is a native of Switzerland, flowering from May to July.



[illegible] and [illegible]
London Published Dec 1 [illegible] by G Kearsley Fleet Street
[illegible] F [illegible]

Rhododendron ponticum
1 Pontic Rhododendron

Robinia hispida
2 Rose acacia

The second species seldom rises two feet high, and sends out many short woody branches, covered with a light brown bark. The leaves are ovate-lanceolate, about half an inch long, and a quarter of an inch broad, sitting pretty close to the branches; they are entire, and have a great number of fine ferruginous hairs on their edges and under side. The flowers are produced in bunches at the ends of the branches. The tube of the corolla is about half an inch long: the five segments of the brim are obtuse, spread half open, and are of a pale red colour. It is a native of the mountains of Switzerland.

The third is a small shrub, very much branched, the extreme branches leafy. The leaves are oblong, hard, on short reddish petioles. The peduncles one, or more, an inch long, villose, reddish brown, terminating. Calyx deeply five-cleft, of the same colour with the peduncle; the segments acute. The corolla purple, the segments ovate. The stamens longer than these. The style longer than the stamens. It is a native of Austria, &c.

The fourth species has an upright trunk, shrubby, commonly the height of a man, but sometimes only half so high, frequently thicker than the human arm, very much branched from the bottom irregularly; the wood white, the bark ash-coloured. The branches round, scattered, with a smoothish testaceous bark. The leaves alternately scattered, coriaceous, large, quite entire, very smooth, becoming ferruginous underneath, scarcely nerved except the midrib, having a longitudinal streak on the upper suface, of a wide-lanceolate form, more attenuated towards the thick petiole. The flowering-buds formed in autumn for the year following, and consisting of ferruginous, ovate-acute, concave, very smooth, imbricate scales. The flowers in a short raceme at the end of the branchlets, about ten, and very handsome. It is a native of the Levant, flowering in May and June.

The fifth species rises in its native soil, fifteen or sixteen feet high, with a shrubby stalk, sending out a few branches towards the top. The leaves stiff, smooth, six inches long and two broad, of a lucid green on their upper side, and pale on their under, whilst young; but afterwards changing to the colour of rusty iron: they have short thick footstalks, and are placed without order round the branches: between these the buds are formed for the next year's flowers; these swell to a large size during the autumn and spring months till the beginning of June, when the flowers burst out from their covers, forming a roundish sessile bunch or corymb. It is a native of North America, flowering here from June to August.

Culture.—These plants may be increased by sowing the seeds, which are very small, as soon as possible after they are procured, either in a shady border, or in pots filled with fresh loam, having them very lightly covered with a little fine mould, and plunging the pots up to their rims in a shady border, and in hard frost covering them with bell or hand-glasses; taking them off in mild weather. When they are sown early in autumn, the plants come up the following spring, when they must be kept shaded from the sun, especially the first summer, and duly refreshed with water; in the autumn following removing them to a shady situation, on a loamy soil, covering the ground about the roots with moss, to guard them from frost in winter and keep the ground moist in the summer season.

They may also be increased from suckers or offsets, which they produce plentifully where they grow naturally, but seldom in this climate.

They are very ornamental in the border, clumps, and other parts of shrubberies.

2. ROBINIA HISPIDA.

ROSE ACACIA.

This genus comprises plants of the hardy deciduous tree and shrub sorts, with tender kinds for the stove.

It belongs to the class and order *Diadelphia Decandria*, and ranks in the natural order of *Papilionaceæ* or *Leguminosæ*.

The characters are: that the calyx is a one-leafed perianth, small, bell-shaped, four-cleft; the three lower toothlets more slender; the upper fourth toothlet wider, scarcely emarginate to the naked eye, all equal in length: the corolla papilionaceous: standard roundish, larger, spreading, blunt: wings oblong, ovate, free, with a very short blunt appendix; keel almost semiorbicular, compressed, blunt, the length of the wings: the stamina have diadelphous filaments, (simple and nine-cleft) ascending at top: anthers roundish: the pistillum is a cylindrical, oblong germ: style filiform, bent upwards: stigma villose in front at the top of the style: the pericarpium is a legume large, compressed, gibbous, long: the seeds few, kidney-form.

The species cultivated are: 1. *R. Pseud-Acacia*, False or Common Acacia; 2. *R. hispida*, Rose Acacia, or Robinia; 3. *R. Caragana*, Siberian Abrupt-leaved Robinia; 4. *R. frutescens*, Shrubby Robinia; 5. *R. pygmæa*, Dwarf Robinia; 6. *R. spinosa*, Thorny Robinia; 7. *R. violacea*, Ash-leaved Robinia; 8. *R. mitis*, Smooth Indian Robinia.

It grows very fast whilst young, so that in a few years from seed, the plants rise to eight or ten feet high, and it is not uncommon to see shoots of this tree six or eight feet long in one summer: the branches are armed with strong crooked thorns: the leaflets eight or ten pairs, ovate, bright green, entire, sessile: the flowers come out from the side of the branches in pretty long bunches, hanging down like those of Laburnum: each flower on a slender pedicel, white, and smelling very sweet: they appear in June, and when the trees are full of flower, make a fine appearance and perfume the air round them; but they seldom continue more than a week. It is a native of North America, where it grows to a very large size, and the wood is much valued for its duration.

There is a variety which has no thorns on the branches, but which is easily known at first sight by its peculiar appearance.

And the Echinated, or Prickly-podded American False Acacia, in which the pods are much shorter, and closely beset with short prickles, but in other respects agrees with the common sort.

The second species rises in its native situation sometimes to the height of twenty feet, but in this climate seems to be of low growth; the branches spread out near the ground, and produce their flowers very young; the young branches, and also the peduncles and calyxes, are closely armed with small brown prickles, or rather stiff bristly hairs, like raspberries and some sorts of roses: the leaves are like those of the first sort, but the leaflets are larger and rounder: the flowers are larger and of a deep rose colour, but they have no scent: they come out early in June, and make a fine appearance; each flower is on a short separate pedicel: the legumes flat oblong. It is a native of Carolina.

The third has arboreous trunks, commonly branched from the bottom, slender, with a smooth, shining, coriaceous bark, covered by a greenish ash-coloured skin: branches alternate, very much divided; twigs rod-like, weak, very leafy, ash-coloured or greenish, with longitudinal nerves running from bud to bud: buds alternate, frequent, bearing both leaves and flowers, unarmed, with the stipules of the bud-leaves soft, but in the new branches spinescent, divaricating, rigid. It is a native of Siberia, flowering in April and May.

The fourth species has a branched trunk from the bottom, with a dusky or greenish-ash-coloured bark; there are commonly many lateral shoots or suckers from the root: the branches rod-like, pliant, loaded with leaves and flowers, of a shining yellowish colour, with longitudinal gray nerves, with triple spines: the leaves on the shoots of the year alternate, with spinescent stipules; from the buds in bundles, with unarmed stipules: the leaflets clustered, obovate, attenuated at the base, with a spinule at the end: petiole spinescent, after the leaves are fallen, hardening with the stipules into a triple spine: the peduncles on the branches of the preceding year from each bud, one, two, or three, bent a little at the joint, one-flowered. It is a native of Siberia, by the Volga, &c.

The fifth has trunks covered with a shining yellowish bark: wood of a very deep bay, almost as hard as horn: the older twigs round, with a beautifully golden shining cuticle; branchlets gray, with very frequent two-spined buds: the spinules slender like needles, spreading, arising from the stipules, in the older branches deciduous: the leaflets four or six in the spontaneous shrub clustered in bundles, quite sessile, linear acuminate, a little hispid: the peduncles springing singly from most of the buds on the branchlets among the leaves, the length of the leaflets, bent at the joint. In this climate it is a low shrub, seldom rising more than three feet. The flowers are yellow, and appear in April. It is a native of Siberia.

The sixth species resembles the third sort, but is distinguished by its stiff or thorny stipules: it is a shrub above the height of a man: the leaflets six or eight, ovate, even: common petiole woody, the whole of it perennial, thorny at the end: the stipules awl-shaped, thorny, perennial: the trunk is scarcely an inch and half in diameter, with branches often a fathom in length, subdivided, twisted and diffused, so as to form a hemispherical head, full of branches and thorns. Being covered with flowers during the whole summer, it appears very beautiful: the wood bay-coloured within, on the outside yellow, and very hard: the cuticle on the younger branches greenish yellow, less shining, and more strigose than in the fifth sort, with ash-coloured longitudinal nerves, running from branch to branch: the branches are round, divaricating, alternate: the thorns spreading out every way almost at right angles, alternate, very large, arising from the permanent petioles enlarged, marked also with the scars of the leaflets, and having at the base on each side a small, bristle-shaped spinule, standing up, and arising from the stipules: there are several leaves and two or three flowers from the axils of all the spines on the branches: the petioles are spinescent: the leaflets commonly two pairs, but sometimes three and even four, linear-lanceolate, mucronate at the end with a spinule, opposite and remote: the peduncles are so short that the flowers seem to be sessile. It is a native of Siberia.

On account of the length and toughness of the branches, and its large stout thorns, it is admirably adapted to form impenetrable hedges, and is sufficiently hardy to bear our climate.

The seventh is an upright tree without thorns, growing to the height of twelve feet: the leaves alternate, numerous, shining; having three leaflets on each side, sometimes two, very seldom five; these are ovate, blunt, emarginate, entire, petioled, opposite, two inches long: the racemes axillary, half a foot in length; pedicels short, two-flowered, numerous: the flowers have the smell and colour of violets. It is a native of Carthagena.

The eighth species has a shrubby stem, three feet high, upright, branched: the leaflets ovate-lanceolate, smooth, bright green, two or three-paired: the racemes terminating, short: the corolla yellow: the legume oblong, narrowing to each end, smooth: the branches round, unarmed: the leaflets five, ovate, smooth, quite entire: the racemes have three flowers fixed at each tooth, each on its proper pedicel: the calyx subtruncate. It is a native of the East Indies, &c.

Culture.—The first six hardy sorts are all capable of being raised from seeds, cuttings, layers, and suckers; but the seed method is said to afford the best plants.

The seeds should be sown about the end of March or beginning of the following month, on a bed of light mould, being covered to the depth of half an inch. In the first sort and varieties the plants mostly appear in the course of six or eight weeks; but in the other kinds often not till the next spring. They should be well weeded and watered, and when sufficiently strong be set out in the spring or autumn in nursery-rows, for two or three years, in order to remain to have proper growth for final planting out.

The cuttings should be made from the young shoots, and planted out in the beginning of autumn, in a shady border where the soil is mellow. They are mostly well rooted in the course of a twelvemonth, when they may be removed into nursery-rows as above.

The layers should be made from the young wood, being laid down in the autumn, when in the course of the year they mostly become well rooted, and may be taken off and planted out in nursery-rows as the seedling plants.

The suckers, which are produced in plenty from the two first sorts, which may be removed in the early autumn or spring, and planted out in nursery-rows or in beds, to be afterwards removed into them.

The two last, or tender sorts, may likewise be raised from seeds and cuttings, but they must be sown and planted in pots, filled with good mould, to have the assistance of a hot-bed in the stove, by being plunged in it. When the plants have attained a little growth, they should be shaken out of the pots, and planted separately in small pots filled with the same sort of earth, plunging them in the tan-bed, affording due shade till well rooted, managing them afterwards as other tender stove plants.

The plants are most tender while young; they should therefore be kept in the stove tan-bed till they have acquired strength, when they may be preserved in the dry stove, with a temperate heat in winter, and be exposed in the open air in summer, in a warm sheltered situation when the weather is fine.

The hardy sorts have a fine effect in the border, clumps, and other parts of pleasure-grounds, and the tender kinds afford variety in the stove collections.

PLATE XLVIII.

1. SYMPHYTUM ORIENTALE.

EASTERN COMFREY.

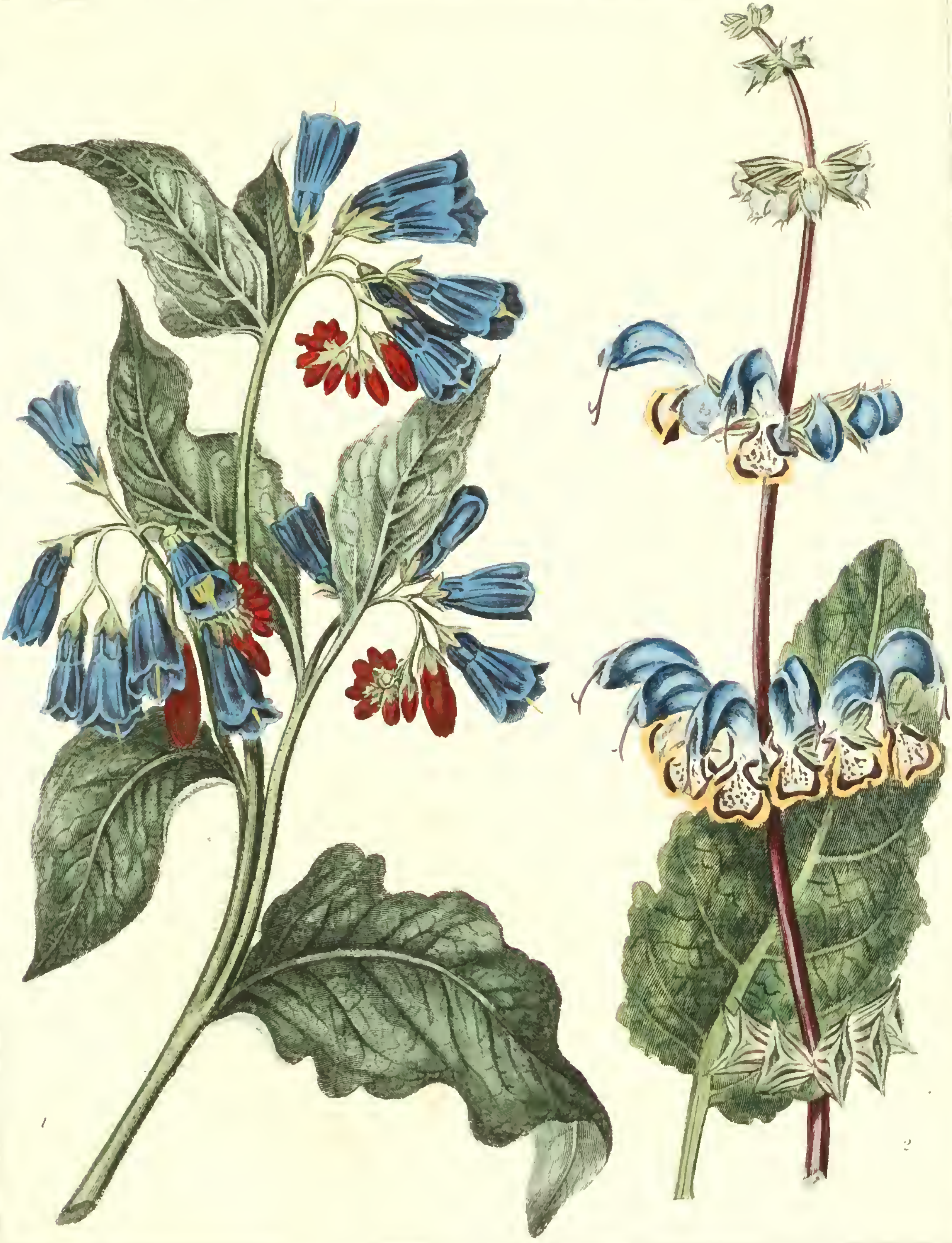
This genus contains plants of the hardy herbaceous perennial kind.

It belongs to the class and order *Petandria Monogynia*, and ranks in the natural order of *Asperifoliæ*.

The characters are: that the calyx is a five-parted perianth, erect, five-cornered, acute, permanent: the corolla one-petalled, bell-shaped: tube very short: border tubular-bellying, a little thicker than the tube: mouth five-toothed, obtuse, reflexed: throat fenced by five lanceolate rays, spinulose at the edge, shorter than the border, converging into a cone: the stamina have five awl-shaped filaments, alternate with the rays of the throat; anthers acute, erect, covered: the pistillum is as four germs: style filiform, length of the corolla: stigma simple: there is no pericarpium: calyx larger, widened: seeds four, gibbous, acuminate, converging at the tips.

The species cultivated are: 1. *S. officinale*, Common Comfrey: 2. *S. tuberosum*, Tuberous-rooted Comfrey; 3. *S. orientale*, Oriental Comfrey.

The first has a perennial root, fleshy, externally black; the stem two or three feet high, upright, leafy, winged, branched at the top, clothed with short bristly hairs that point rather downward: the leaves waved, pointed, veiny, rough; the radical ones on footstalks, and broader than the rest; the clusters of flowers in pairs on a common stalk, with an odd flower between them, recurved, dense, hairy: the corolla yellowish-white, sometimes purple: the rays downy at each edge. It is a native of Europe and Siberia.



Painted by Sydl Edwards London Published July 1 1801 by G Kearsley Fleet Street Engraved by F Sansom

1 Symphytum orientale
Eastern Comfrey

2 Salvia indica
Indian Sage

There are varieties with white flowers, purple flowers, with blue flowers, and with red flowers.

The second species has the roots composed of many thick fleshy knots or tubers, which are joined by fleshy fibres: the stalks rise a foot and half high, and incline on one side: the leaves on the lower part are six inches long, and two inches and a half broad in the middle, ending in acute points, and not so rough and hairy as the first; they are alternate and sessile: the two upper leaves on every branch stand opposite, and just above them are loose bunches of pale yellow flowers, the corolla of which is stretched out further beyond the calyx than in the common sort. It is a native of Germany, &c. and flowers from May to October.

The third has a perennial root: the stalks two feet high: the leaves rounder, and armed with rough prickly hairs: the flowers in bunches like the first sort, but blue: they appear in March, but seldom produce seeds in this climate. Found near Constantinople.

Culture.—These plants may be increased by seeds or parting the roots, but the latter is more practised. The seed should be sown in the spring, in a border of common earth; in the autumn the plants will be proper to set out where they are to remain, or to remove into other pots. The roots should be parted in the autumn, and planted out either in beds about a foot from plant to plant, or where they are to remain; almost every part will grow, and the plants are hardy, and succeed in any soil or situation: they only require to be kept clean afterwards. They produce variety in mixture in the borders.

2. SALVIA INDICA.

INDIAN SAGE.

This genus contains plants of under-shrubby, herbaceous, and shrubby kinds.

It belongs to the class and order *Diandria Monogynia*, and ranks in the natural order of *Verticillatæ*.

The characters are: that the calyx is a one-leafed perianth, tubular, striated, gradually widening and compressed at the top: mouth erect, two-lipped; lower lip two-toothed: the corolla one-petalled, unequal: tube widening at the top, compressed: border ringent, upper lip concave, compressed, curved inwards, emarginate; lower lip wide, trifid, middle segment larger, roundish, emarginate: the stamina have two filaments, very short; two threads are fastened transversely to these almost in the middle, on the lower extremity of which is a gland, on the upper an anther: the pistillum is a four-cleft germ: style filiform, very long, in the same situation with the stamens: stigma bifid: there is no pericarpium. Calyx very slightly converging, having the seeds in the bottom of it: the seeds four, roundish.

The species cultivated are: 1. *S. officinalis*, Garden Sage; 2. *S. grandiflora*, Broad-leaved Garden Sage; 3. *S. triloba*, Three-lobed Sage, or Sage of Virtue; 4. *S. sclarea*, Common Clary; 5. *S. argentea*, Silvery-leaved Sage or Clary; 6. *S. verbenaca*, Vervain Sage or Clary; 7. *S. Indica*, Indian Sage or Clary; 8. *S. Horminum*, Red-topped Sage or Clary: 9. *S. glutinosa*, Yellow Sage or Clary; 10. *S. Mexicana*, Mexican Sage; 11. *S. Canariensis*, Canary Sage; 12. *S. Africana*, Blue-flowered African Sage; 13. *S. aurea*, Gold-flowered African Sage; 14. *S. pomifera*, Apple-bearing Sage; 15. *S. formosa*, Shining-leaved Sage.

The first is a branching shrub, about two feet in height: the younger branches are tomentose and whitish: the leaves are wrinkled, cinereous white or tinged with dusky purple, on very short petioles, sometimes eared at the base: the flowers terminating, in long spikes composed of six-flowered whorls, approximating, yet distinct. It is a native of the south of Europe and Barbary.

The varieties are: the Common Green Sage, the Wormwood Sage, the Green Sage with a variegated leaf, the Red Sage, the Red Sage with a variegated leaf, the Painted or Parti-coloured Sage with red leaves striped with white, or white, red, and green mixed, found, says Johnson, " in a country garden by Mr. John Tradescant, and by him imparted to other lovers of plants." There is also Spanish or Lavender-leaved Sage, in which the leaves are linear-lanceolate, very narrow and quite entire, in clusters on the side of the stalks; they are very hoary, and the branches are covered with a hoary down: the leaves on the upper part of the stalk are narrower than those of Rosemary; the flowers grow in closer spikes, and are of a light blue colour.

But the variety with red or blackish leaves is the most common in cultivation: and the Wormwood Sage is in greater plenty than the Common Green-leaved Sage.

In the second species the stalks do not grow so upright as those of the Common Sage; they are very hairy, and divide into several branches: the leaves are broad, woolly, on long petioles, serrate, and rough on the upper surface: the leaves on the flower-stalks are oblong-ovate, on shorter petioles, and very slightly serrate: the whorls are pretty far distant, and few flowers in each; they are of a pale blue, and about the same size with those of the common sort. It flowers in June, and in good seasons the seeds ripen in autumn. This sage is preferred to all the others for tea. It is often called Balsamic Sage.

The third has the leaves narrower than those of the common sort; they are hoary, and some of them are indented on their edges towards the base, which indentures have the appearance of ears. The spikes of flowers are longer than those of the two preceding sorts, and the whorls are generally naked: the flowers are smaller, and of a deeper blue than those of the Common Sage. It is a native of the south of Europe.

The fourth species has the lower leaves large, in good ground seven or eight inches long, and four broad at the base, ending in blunt points: the stems large and clammy, about two feet high, with leaves of the same shape, but smaller, and sending out small opposite side branches: the flowers in loose terminating spikes, composed of whorls, of a pale blue colour. It is biennial, and a native of Syria, &c. flowering from July to September.

It is observed, that "a wine is made from the herb in flower, boiled with sugar, which has a flavour not unlike Frontiniac."

The fifth has the leaves of a thick consistence, having several irregular indentures on their borders: the stem near a foot and half high, sending out two or four branches near the bottom, which grow erect, the whorls of flowers large, towards the top barren. It is a native of the island of Candia, and biennial, flowering in June.

The sixth has a perennial brown root, the thickness of the middle finger, striking deep into the earth, and furnished with numerous fibres: the stems nearly upright, two feet high, set with horizontal somewhat viscid hairs, purplish, especially at the joints: the root-leaves on long petioles, varying in form, oblong, rounded at the end, sometimes a little pointed, not unfrequently heart-shaped at the base, but more commonly the leaf runs down on each side the foot-stalk, and to a greater length on one side than on the other, very slightly hirsute, on the margin irregularly waved and serrate or toothed, paler beneath, veiny and marked with small glandular concave dots: stem-leaves somewhat remote, the lowermost on short footstalks, theu ppermost sessile: the flowers in whorls, almost naked, containing about six flowers. It is a native of all the four continents, flowering during the whole summer from June, and even in October.

The seventh has the lower leaves heart-shaped, acutely crenate, of a thick consistence, seven or eight inches long, and four broad at the base, where they are eared: the stem four feet high, having two or three pairs of smaller leaves on the lower part of the joints: the upper part, for the length of two feet, has whorls of flowers, at two or three inches distance from each other, without any leaves under them: the calyx is hairy and blunt: the helmet of the corolla arched, erect and blue, terminating in a blue point; the two side segments of the under lip are of a violet colour; the middle segment, which is indented at the point, is white, and curiously spotted with violet on the inside; the two side lobes turn yellow before the flower drops. It is a native of India, flowering from May to July.

The eighth has the stems erect, about a foot and half high: the leaves shaped like those of the common Red Sage, gradually diminishing in size to the top: the stems have whorls of small flowers, and are terminated by clusters of small leaves, and forming two varieties; one with purple and another with red tops. For the sake of this coma they are preserved in gardens for ornament. They flower in June and July, and their seeds ripen in the autumn. It is a native of the south of Europe.

The ninth has an abiding root, composed of strong woody fibres: the leaves four inches long, and three broad at the base, of a pale yellowish green colour, upon footstalks three or four inches long: the stems strong, near four feet high, having smaller leaves below, and the upper part closely set with whorls of large yellow flowers. The whole plant is very clammy, and has a strong scent, somewhat like common Garden Clary. The flowers are used in Holland to give a flavour to the Rhenish wines. It is a native of Germany, &c. flowering from June to November.

The tenth has the stem shrubby, eight or ten feet high, sending out slender four-cornered branches of a purplish colour: the leaves thin, pale green, and hairy on their under side, on long slender footstalks: the flowers in close thick spikes at the end of the branches, having a fine blue colour. It is a native of Mexico, flowering from May to July.

The eleventh has the stem shrubby, five or six feet high, dividing into many branches covered with a flocky down: the leaves three inches and a half long, and an inch and half broad at the base, where are two acute angular ears: petioles long and woolly: the top of the stalk branches out into many footstalks, forming a sort of panicle: the flowers are of a light blue colour, and are ranged in whorled spikes, having two small leaves under each whorl. It is a native of the Canary Islands, flowering from June to September.

The twelfth rises with a shrubby stalk four or five feet high, dividing into branches: the leaves are ovate, of a gray colour: the flowers come out in whorls towards the end of the branches; they are of a fine blue colour, larger than those of the common Sage, appear in succession most of the summer months, and those which come early are often followed by seeds ripening in autumn. It is a native of the Cape.

The thirteenth also rises with a shrubby stalk seven or eight feet high, covered with a light-coloured bark, sending out branches the whole length, which grow almost horizontally: the leaves are of a gray colour: the flowers, in thick short spikes at the end of the branches, are very large, and of a dark gold colour. It is a native of the Cape, flowering from May to November.

The fourteenth has the stem shrubby, four or five feet high, dividing into several branches: the flowers of a pale blue colour: the branches have often punctures made in them by insects, producing protuberances as big as apples, in the same manner as galls upon the Oak, and the rough balls upon the Briar. It is remarked by Martyn, that the common Sage has the same excrescences in the island of Candia or Crete, and that they carry them to market there under the name of Sage Apples. It was found at Candia.

The fifteenth has the stem suffruticose, the height of a man, upright, brachiate, somewhat knotty, loosely chapped, ash-coloured: the branches and branchlets opposite, spreading, four-cornered, naked at the base, rufous: shoots four-grooved, green at the top, clammy: the leaves spreading, acute (in the garden bluntish), crenate-serrate, somewhat wrinkled, veined, with the midrib and veins prominent only beneath, subcoriaceous, greenish, but paler on the back: petiole scarcely half as long as the leaf, round on one side, grooved on the other: flowers very many, from the axils of the shoots, in a sort of whorl, in the garden commonly five together, the two lower of which are later: they are on short, spreading, one-flowered peduncles, jointed at the top. It is a native of Peru, flowering most part of the summer.

Culture.—These plants are in most of the sorts raised without much difficulty.

Culture in the Sage Kind.—This in all the varieties may be effected by slips or cuttings of the young shoots from the sides of the branches, sometimes also by bottom rooted offsets, and likewise by seed. Slips both of the former and same year's growth may be used.

Those of the first sort may be employed in April, but the latter not till May, or later; these, however, most readily strike root, and assume a free growth.

In either case moist weather should be chosen; and having recourse to some good bushy plants, a proper quantity of the outward robust side shoots, about five, six, or seven inches long, should be slipped off, trimming off all the lower leaves, then planted out in some shady border, with a dibble, in rows half a foot asunder, putting them down almost to their tops, giving water directly, to settle the earth close, as well as to promote an early emission of root-fibres, and repeating the waterings occasionally in dry weather: the slips in general soon emit fibres, and shoot freely at top; when they have a tendency to spindle up with slender shoots, or run up to flower, it is proper to top them short, in order to force out laterals below, to asume a bushy growth: they mostly form tolerably bushy plants by the autumn, when, or in the spring following, they may be removed, with balls of earth about their roots, and planted where they are to remain, either in four feet beds, or in continued rows, a foot and half asunder, if designed as a close plantation for use: those designed for the pleasure-ground should be disposed in the borders, &c. so as to afford variety.

Where there are rooted offsets, they may be slipped off separately with the fibres to them, either as the plants stand in the ground, or the bunches of plants taken up and divided into as many separate slips as are furnished with roots, being planted out at once where they are to remain.

The plants raised from young slips generally form the strongest and most bushy plants.

In raising these plants from seed, which is but seldom practised, it should be sown in April, in a bed of light rich earth, raking it in: the plants soon come up; and when about two or three inches high, should be pricked out, the strongest in nursery rows, half a foot asunder, to gain strength till the autumn or spring following, and then planted out with balls where they are to stand.

In the after-culture of this species and varieties, all that is requisite is the keeping them clean from weeds in summer, cutting down the decayed flower-stalks in autumn, and slightly digging between the rows in the same season, to keep them clean and decent during the winter, &c. But where this digging is not done in the autumn it should not be omitted in the spring.

The leaves of the Sage should be gathered with care and attention, not to cut the tops too close, to render the plants naked and stubby, especially when late in autumn and winter; in which they would be more liable to suffer from severe frost than when the head is preserved somewhat full and regular: besides, in this state the plants continue longer in a prosperous free growth.

When, in any old plantation, naked, stubby, or decayed parts occur, they should be cut out, and any straggling irregular growths reduced to order by occasional pruning in spring or summer, by which the plants will more readily emit fresh shoots and form full heads.

Fresh plantations of Sage should be formed as the old ones decline.

In continuing them where the ground is much impoverished, a little dry rotten dung should be pointed in lightly, to give more vigour to the plants.

Culture in the Clary Kind.—These in the herbaceous kinds are easily raised from seed, and in the perennial sorts by parting the roots.

The seed should be sown in March, in any bed or border of common earth, raking it in; and when the plants have got leaves of two or three inches growth, they should be planted out in showery weather, in rows eighteen inches distant, and at the same distance in the lines: they soon strike root, and grow large, furnishing large leaves, fit for use in autumn, winter, and the following spring.

The perennial sorts are raised from seed in the same manner, setting the young plants out in the summer in nursery-rows till autumn, when they should be planted out into the borders, &c.

The annual sorts may be sown in spring in the borders, in patches, to remain.

The roots in the perennial kinds may be parted in autumn, or early in the spring, and planted out where they are to remain.

Culture in the tender Shrubby Kinds.—These are easily increased by cuttings of the young shoots; they should be planted in pots in the spring, and plunged in a hot-bed, where they soon emit roots at bottom and shoots at top, and should be gradually hardened to the full air: but cuttings planted in summer will often strike without the aid of a hot-bed when planted either in pots or in a bed of natural earth, under frames and lights, or covered close with hand-glasses, and shaded from the mid-day sun, being occasionally watered.

The young plants should afterwards be potted off separately, and managed as other shrubby exotics of the green-house.

The last sort requires a warm dry green-house in winter, and to be very sparingly watered.

Some of the sorts are useful as culinary plants, others for the purpose of ornament in the borders, &c. and the tender sorts in green-house collections.

PLATE XLIX.

1. SANGUINARIA CANADENSIS.

CANADA PUCCOON.

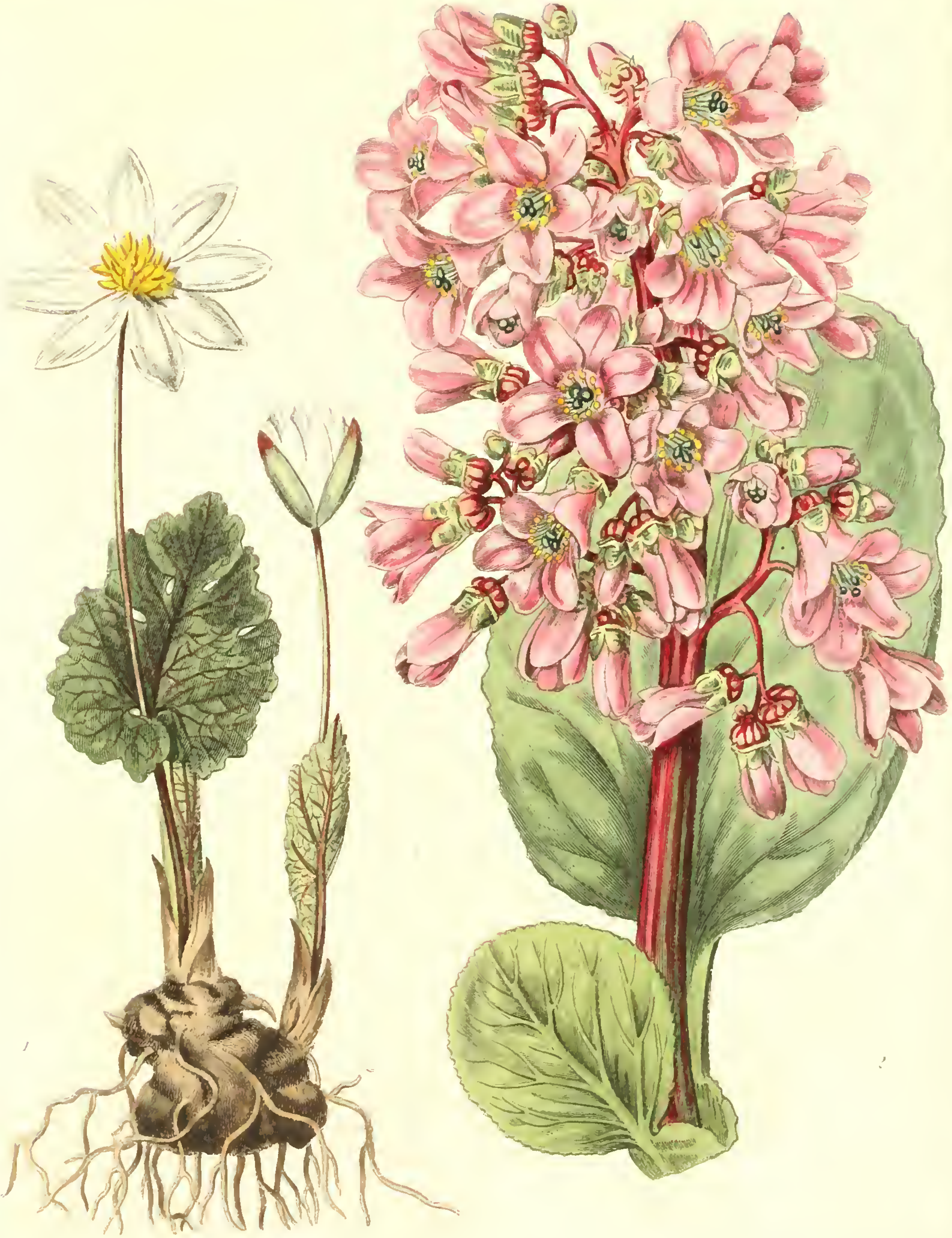
This genus contains a plant of the low herbaceous flowering kind.

It belongs to the class and order *Polyandria Monogynia*, and ranks in the natural order of *Rhoeadeæ*.

The characters are: that the calyx is a two-leaved perianth, ovate, concave, shorter than the corolla, caducous: the corolla has eight petals, oblong, blunt, spreading very much, alternately interior and narrower: the stamina have very many filaments, simple, shorter than the corolla: anthers simple: the pistillum is an oblong compressed germ: style none: stigma thickish, two-grooved with a streak, height of the stamens, permanent: the pericarpium is an oblong capsule, ventricose, sharp at both ends, two-valved: the seeds very many, round, acuminate

The species is *S. Canadensis*, Canadian Sanguinaria, Bloodwort, or Puccoon.

It has a tuberous, thick, fleshy root, placed transversely, with several slender fibres descending from it, of a reddish saffron colour, and yielding a juice of the same hue, which is bitter and acrid, and flows also from the leaves and footstalks when cut. In the spring the root puts forth slender round smooth stems, palish green or brownish tinged with purple, each terminated by a little conical head, which expands into a white flower of eight petals, at first concave, then flat, and finally rolled back so as to be convex, marked with slender streaks: filaments white, with saffron-coloured anthers. When the flowers are about expanding, a single leaf comes out upon



[illegible] Edwards. London Published May 1.1806 by G.Kearsley Fleet Street. Engrav'd by F. [illegible]

1 *Sanguinaria Canadensis.*
Canada Puccoon

2 *Saxifraga craſsifolia*
Oval leaved Saxifrage

each flower-stalk, at first small, compressed, and protecting the flower with its foot-stalk; but afterwards becoming larger, and unfolding into lobes, like those of the fig, which are thickish, smooth, internally of a deep glaucous green, externally of a whitish glaucous colour with frequent veins, most conspicuous on the outside; on petioles which are flat and slightly grooved on the inside, and convex on the outside. Three or four flower-stems arise from each root, and are surrounded at the base by oblong, membranaceous, tender, striated scales: the root, leaves, and flowers have no smell. It is a native of America, and flowers here in the beginning April.

There are varieties with single flowers, with semi-double flowers, and full flowers.

Culture.—This plant is readily increased by parting the roots, and planting them out in the borders or other places where they are to remain, in the autumnal season, when the leaves and stems decay.

They should have a loose soil, with a mixture of bog earth and rotten leaves, and sheltered situation, not too much exposed to the sun: the roots should not be parted oftener than every two years.

They afford variety in the borders, clumps, and other parts among other low-growing bulbous-rooted plants.

2. SAXIFRAGA CRASSIFOLIA.

OVAL-LEAVED SAXIFRAGE.

THIS genus contains plants of the low hardy herbaceous perennial kind.

It belongs to the class and order *Decandria Digynia*, and ranks in the natural order of *Succulentæ.*

The characters are: that the calyx is a one-leafed perianth, five-parted, short, acute, permanent: the corolla has five petals, spreading, narrow at the base: the stamina have ten awl-shaped filaments: anthers roundish: the pistillum is a roundish acuminate germ, ending in two short styles: stigmas blunt: the pericarpium is a subovate two-beaked capsule, two-celled, opening between the points: the seeds numerous, minute.

The species mostly cultivated are: 1. *S. Cotyledon,* Pyramidal Saxifrage; 2. *S. granulata,* White Saxifrage; 3. *S. crassifolia,* Thick-leaved Saxifrage; 4. *S. umbrosa,* London Pride; 5. *S. hypnoides,* Mossy Saxifrage, or Ladies' Cushion; 6. *S. sarmentosa,* China Saxifrage; 7. *S. rotundifolia,* Round-leaved Saxifrage.

There are other species that may be cultivated.

The first has the panicle very much branched, many-flowered, or branched a little with few flowers: the petals unspotted or spotted; and according to Miller, who has made three species of it, the roots are perennial and fibrous, and the leaves are gathered into circular heads, embracing each other at the base like the common Houseleek, in some of the sorts tongue-shaped, about two inches long, and a quarter of an inch broad: the stem about a foot high, purplish, a little hairy, and sending out several horizontal branches the whole length: the flowers are in small clusters at the end of the branches; white with several red spots on the inside. But in others the leaves are smaller. It is a native of the Alps.

It is observed, that when these plants are strong they produce very large pyramids of flowers, which make a fine appearance; and being kept in the shade, and screened from wind and rain, continue in beauty a considerable time: they flower in June. There are several varieties.

The second species has the root composed of several little grains or knobs, attached to one main fibre, and throwing out small fibres from their base: the stem is erect, round, pubescent, leafy, somewhat viscid, branched and panicled at top, of a brown or reddish hue, with which colour the leaves, &c. are also tinged, giving the whole herb a rich glowing appearance; these parts are also clothed with the same kind of hairs, especially the calyx, which is very clammy to the touch: the leaves are somewhat fleshy, lobed, and cut; those next the root on long footstalks; those on the stem alternate, subsessile. It is a native of Europe, flowering in May.

It varies with double flowers, in which state it is cultivated as an ornamental plant.

The third has the root superficial, black, scaly, with the relics of dead leaves, the thickness of a finger or thumb, round, sending down filiform fibres from the lower surface: the stems from the axils of the leaves of the year preceding at the tops of the roots alternate, very short, almost upright, covered with the sheaths of the leaves, quite simple, but branched in autumn: the leaves three or four, alternate, spreading very much, obovate-oblong, crenulate, subretuse, very smooth, veined, a span long, flat, coriaceous: the petioles shorter by half than the leaves, roundish, channelled, smooth, with a wide membrane at the base, of an ovate form, embracing, and in the winter season serving for a gem: the scape or peduncle terminating, solitary, erect, a span high, the thickness of the little finger, roundish, very smooth, purplish, almost naked, many-flowered: the panicle contracted, naked, blood-red, composed of pedate racemes: the flowers inferior, drooping, pedicelled: the pedicels short, round, rugged.

It is observed, that "the stem changes every year into root; that which flowers one year losing its leaves during the winter, turning to the ground, becoming black, and putting forth fibres:" and after the plant has flowered, the stem puts forth branches from the axils of the leaves, which have the panicle of flowers for the next year included in their gems.

According to Curtis, the leaves are large, red on the under, and of a fine shining green on their upper surface, and may be ranked among the more handsome kinds of foliage: the flowering stems, according to the richness and moisture of the soil in which they are planted, rise from one to two or even three feet high; at top supporting a large bunch of purple pendulous flowers, expanding in April and May, and, if the season prove favourable, making a fine appearance. It is a native of Siberia.

It is remarked, that " there is another Saxifrage in gardens, exceedingly like this in appearance, but differing, in producing larger bunches of flowers, and in having larger, rounder, and more heart-shaped leaves."

The fourth species has the leaves all radical, aggregate in tufts, spreading, running down into the petiole, even and quite smooth, often purple beneath: the scape a span high, erect, red, hairy, many-flowered, with a few small alternate bractes: the flowers upright: the calyx finally reflexed: the petals obovate-lanceolate, white or flesh-coloured, most beautifully dotted with yellow and dark red: the germ altogether superior, rose-coloured: the capsule ventricose, tipped with purple. It is a native of Ireland and England, flowering in June and July. It has the names of None-so-pretty, and London Pride.

The fifth has long slender fibrous roots, throwing many procumbent leafy shoots, which grow matted together, forming thick tufts: from the common origin of these arises a solitary erect round stem, bearing two or three straggling linear undivided leaves, and terminating in an upright panicle of a few large white flowers: the leaves are alternate, linear, acute, pale green, smooth, their edges only often hairy with soft white woolly threads: the leaves on the shoots simple and undivided; those at the bottom of the stem all deeply three-cleft, with the segments divaricate. According to Withering, the stem, fruitstalks, and calyx are thickly set with short hairs terminated by red globules, and the rest of the plant thinly set with fine white hairs. It is a native of Britain, flowering in May, and often again sparingly in July and August.

The sixth species has the root-leaves petioled, cordate-suborbicular, hairy, crenate, with blunt lobules, oleraceous, having white veins on the upper surface, beneath liver-coloured: the petioles roundish, longer than the leaf: the stem herbaceous, round, a foot and half high, almost leafless, pubescent, as the whole herb is, with hairs standing out; the whole raceme compound, the partial racemes drooping at the end before they flower. Branched runners proceed in abundance from the axils of the root-leaves, terminating in rooting off-sets: three of the petals are smaller, whitish stained with red; two larger, white. It is observed, that "its round variegated leaves, and strawberry-like runners, with the uncommon magnitude of the two lower pendent petals, joined to the very conspicuous glandular nectary, in the center of the flower, half surrounding the germ, render it strikingly distinct." It is a native of China and Japan, flowering in June and July.

The seventh has the lower leaves almost round, on long footstalks, deeply divided, hairy and green above, pale beneath: the stems erect, about a foot high, channelled and hairy, with kidney-shaped leaves: the stem puts out a few slender footstalks from the upper part, which, together with the stem itself, are terminated by small clusters of flowers, white spotted with red. It is a beautiful plant, and a native of Switzerland, &c.

Culture.—The first sort may be readily increased by planting off-sets taken from the sides of the old plants in small pots filled with fresh light earth, placing them in the shade during the summer, but letting them be exposed to the influence of the sun in winter: all the off-sets should be taken off, as by that means they will flower much stronger: the young plants afford flowers the second year.

The second sort may likewise be increased in the same way, which should be planted out where they are to remain in July, when the stems decay, in fresh undunged earth, giving them a shady situation till winter: they should be set out in large tufts, and when in the open ground have a shady place assigned them.

The third sort may be increased with little trouble by parting the roots, and planting them out in the spring or autumn in the open ground, or in pots in the former situation, being protected in severe weather, and in the latter removed to the green-house or a garden frame.

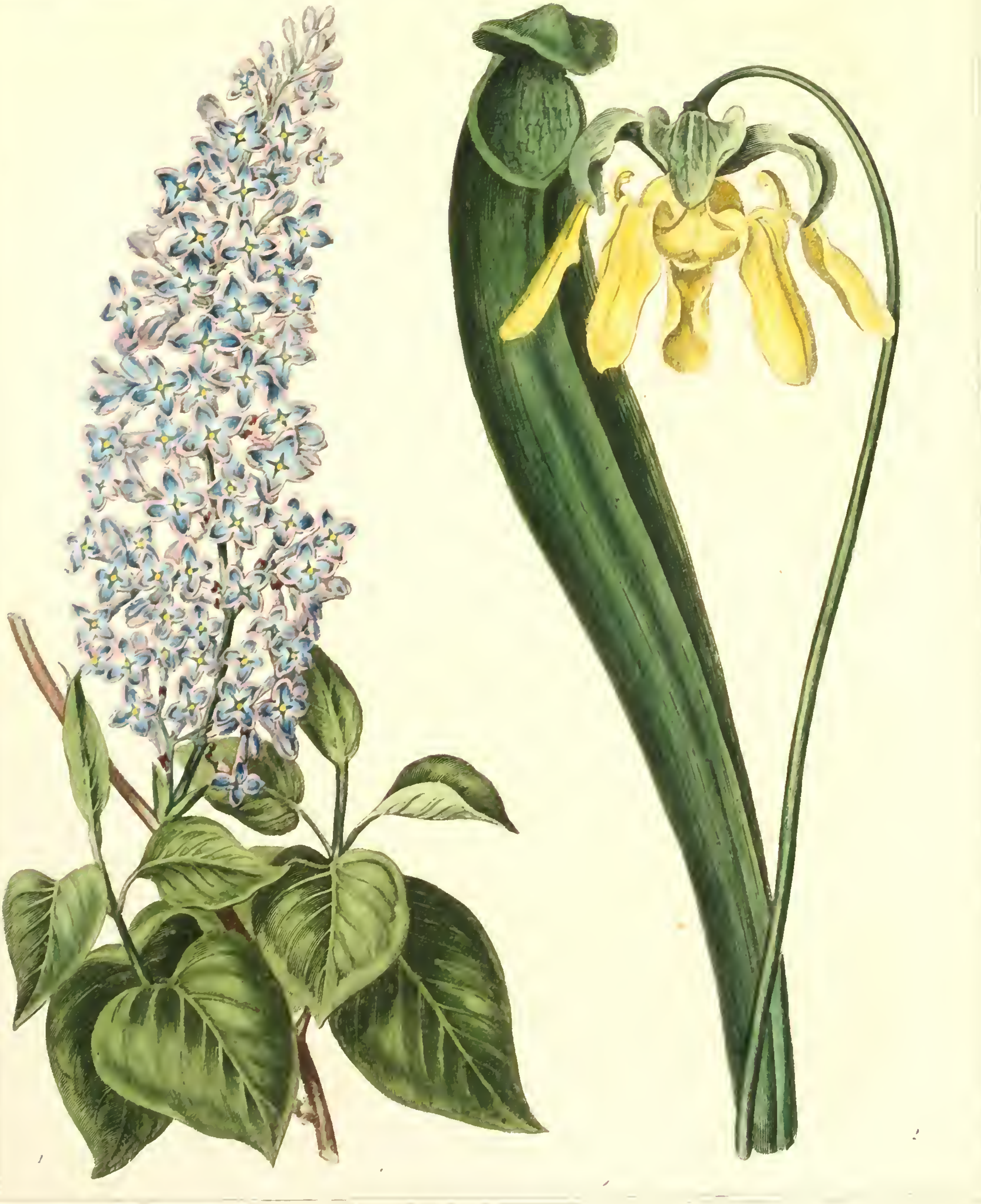
The fourth may also be raised by off-sets in the same way, a shady situation being chosen.

The fifth sort is easily increased by planting its trailing rooted branches in the autumn where they are to remain: it should have a moist soil and shaded situation.

The sixth may be readily raised by the runners, which may be planted in pots to be placed in the green-house, though it will bear the open air in mild winters in a warm sheltered situation.

The last may be increased by parting the roots and planting them out in the early autumn: it should have a moist shady situation, with a rather stiff loamy soil.

They all afford ornament and variety in the clumps, borders, and other parts of pleasure-grounds; except the sixth, which must have a place in the green-house collection.



Painted by Sydl Edwards London Published May 1 1806 by G Kearsley Fleet Street Engraved by F Sansom

1 *Syringa vulgaris*
Lilac

2 *Sarracena flava*
Yellow Sarracena

PLATE L.

1. SYRINGA VULGARIS.

LILAC.

This genus contains plants of the deciduous flowering shrubby kind.

It belongs to the class and order *Diandria Monogynia*, and ranks in the natural order of *Sepiariæ*.

The characters are: that the calyx is a one-leafed perianth, tubular, small: mouth four-toothed, erect, permanent: the corolla one-petalled, funnel-form: tube cylindric, very long: border four-parted, spreading and rolled back: segments linear, obtuse: the stamina have two filaments, very short: anthers small, within the tube of the corolla: the pistillum is an oblong germ: style filiform, length of the stamens: stigma bifid, thickish: the pericarpium is an oblong capsule, compressed, acuminate, two-celled, two-valved: valves contrary to the partition: the seeds solitary, oblong, compressed, acuminate at both ends, with a membranaceous edge.

The species cultivated are: 1. *S. vulgaris*, Common Lilac: 2. *S. Persica*, Persian Lilac.

The first is a shrub, which grows to the height of eighteen or twenty feet in good ground, and divides into many branches; those of the White sort grow more erect than the Blue; and the Purple or Scotch Lilac has its branches yet more diffused. The branches of the White are covered with a smooth bark of a gray colour; in the other two it is darker; the leaves of the White are of a brighter green; they are heart-shaped in all, almost five inches long, and three inches and a half broad near the base, placed opposite, on footstalks an inch and half in length. The buds of the future shoots, which are very turgid before the leaves fall, are of a very bright green in the White sort, but those of the other two are dark green. The flowers are always produced at the ends of the shoots of the former year; and below the flowers other shoots come out to succeed them; as that part upon which the flowers stand decays down to the shoots below every winter. There are generally two bunches or panicles of flowers joined at the end of each shoot; those of the Blue are the smallest, the flowers also are smaller, and placed thinner than either of the others; the bunches on the White are larger, but those of the Scotch are larger still, and the flowers fairer; it of course makes the best appearance: the panicles of flowers grow erect, and, being intermixed with the bright green leaves, have a fine effect, which with the fragrancy of the flowers, renders it one of the most beautiful shrubs of the garden: the flowers appear early in May, or towards the end of April, and when the season is cool continue three weeks; but in hot seasons soon fade. It is supposed a native of Persia.

There are several varieties: as with white flowers, with blue flowers, with purple flowers, or Scotch Lilac.

The second species is a shrub of much lower growth than the common sort, seldom rising more than five or six feet high: the stems are covered with a smooth brown bark: the branches are slender, pliable, extend wide on every side, and frequently bend down where they are not supported: the leaves two inches and a half long, and three fourths of an inch broad, of a deep green colour: the flowers in large panicles at the end of the former year's shoots, as in the former; of a pale blue colour, and having a very agreeable odour. They appear at the end of May, soon after those of the common sort, and continue longer in beauty, but do not perfect their seeds in this climate.

There are several varieties: as the common purple-flowered, white-flowered, blue-flowered, and the laciniated or cut-leaved.

Culture.—These plants are mostly raised by suckers or layers, and sometimes by seeds. The suckers should be taken off in the autumn or spring, with root-fibres to them, and be planted out either in nursery-rows, to remain a year or two, or where they are to remain. The layers may be made from the young pliant shoots, and be laid down in the autumn, in the usual way, when in the autumn following they may be taken off and planted out, as in the suckers. The first sort may likewise be raised from seeds sown in a bed of common earth, in the autumn or spring, keeping the plants clean when they come up. They afford variety in the large borders and other parts of shrubberies.

2. SARRACENA FLAVA.

YELLOW SARRACENA.

This genus contains plants of the herbaceous perennial kind.

It belongs to the class and order *Polyandria Monogynia*, and ranks in the natural order of *Succulentæ*.

The characters are: that the calyx is a double perianth; lower three-leaved: leaflets ovate, very small, deciduous; upper five-leaved; leaflets subovate, very large, coloured, deciduous: the corolla has five ovate petals, bent in, covering the stamens: claws ovate-oblong, straight: the stamina have numerous small filaments: anthers simple: the pistillum is a roundish germ: style cylindrical, very short: stigma clypeate, peltate, five-cornered, covering the stamens, permanent: the pericarpium is a roundish five-celled capsule: the seeds numerous, roundish, acuminate, small.

The species are: 1. *S. flava*, Yellow Side-saddle Flower; 2. *S. purpurea*, Purple Side-saddle Flower.

The first has the leaves near three feet high, small at the bottom, but widening gradually to the top; they are hollow, and arched over at the mouth like a friar's cowl: the flowers grow on naked pedicels, rising from the root to the height of three feet, and are of a green colour. It is a native of Carolina, Virginia, &c. flowering in June and July.

The second species has a strong fibrous root, which strikes deep into the soft earth, from which arise five, six, or seven leaves, in proportion to the strength of the plant; these are about five or six inches long, hollow like a pitcher, narrow at their base, but swell out large at the top; their outer sides are rounded, but on their inner side they are a little compressed, and have a broad leafy border running longitudinally the whole length of the tube; and to the rounded part of the leaf there is on the top a large appendage or ear standing erect, of a brownish colour; this surrounds the outside of the leaves about two thirds of the top, it is eared at both ends, and waved round the border: from the centre of the root, between the leaves, arises a strong, round, naked footstalk, about a foot high, sustaining one nodding flower at the top: the leaflets of the upper calyx are obtuse, and bent over the corolla, so as to cover the inside of it; they are of a purple colour on the outside, but green within, only having purple edges: the petals are of a purple colour, and hollowed like a spoon. It is a native of most parts of North America, in boggy situations.

Culture.—As these plants grow naturally in soft boggy situations, they are raised with difficulty here. The best mode is to procure them from the places of their natural growth, and to have them taken up with large balls of earth to their roots, and planted in tubs of earth; they should be constantly watered during their passage, otherwise they decay before they arrive: as there is little probability of raising these plants from seeds, so as to produce flowers in many years, if the seeds should even grow, young plants should be taken up for this purpose, as they are more likely to stand than those which have flowered two or three times. When the plants are brought over, they should be planted into pretty large pots, which should be filled with soft spongy earth, mixed with rotten wood, moss, and turf, which is very like the natural soil in which they grow. These pots should be put into tubs or large pans which will hold water, with which they must be constantly supplied, and placed in a shady situation in summer; but in winter be covered with moss, or sheltered under a frame, otherwise they will not live in this climate; having free air admitted in mild open weather.

PLATE LI.

1. SCABIOSA ATROPURPUREA.

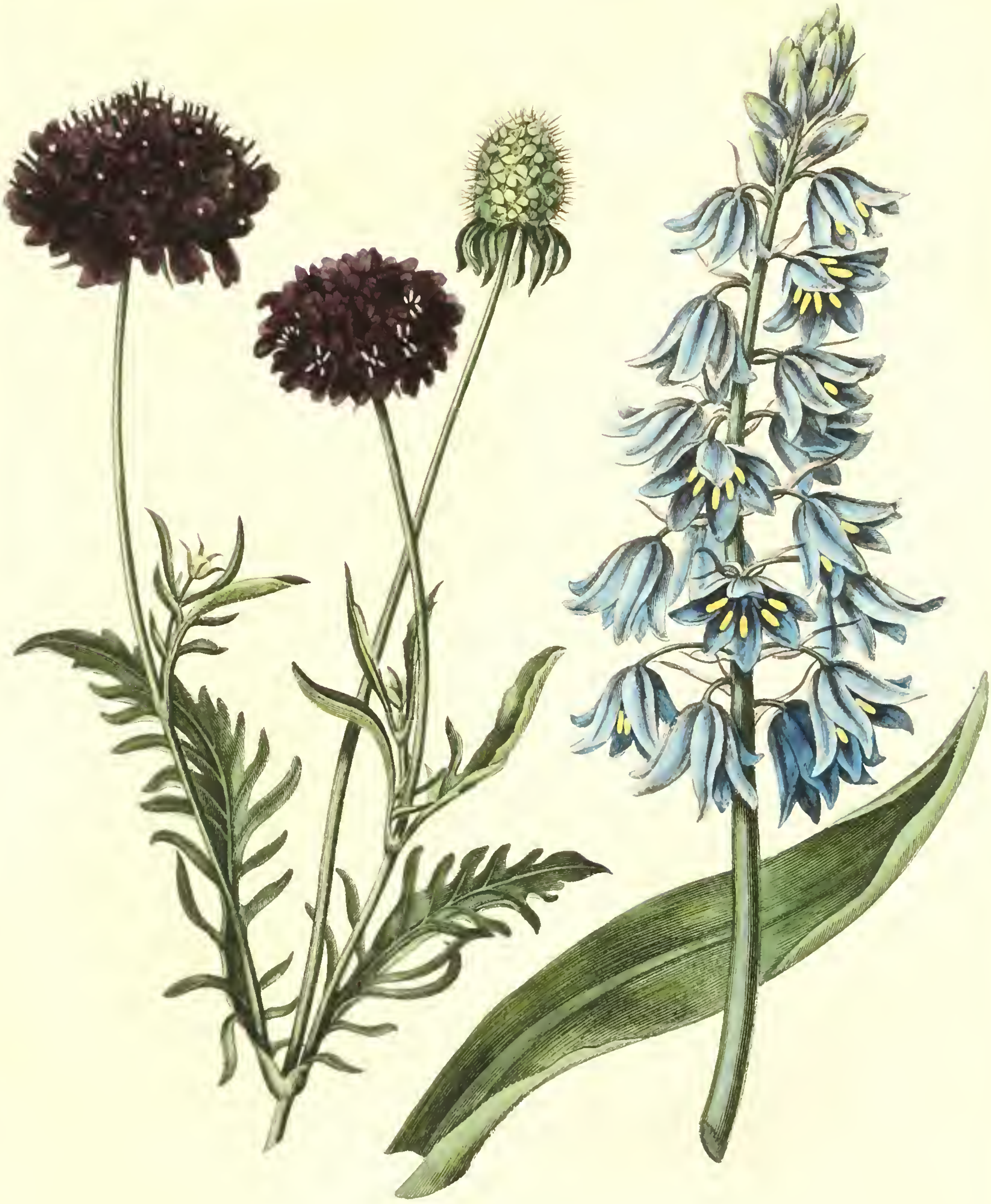
SWEET SCABIOUS.

This genus contains plants of the herbaceous, annual, biennial, perennial, and shrubby kinds.

It belongs to the class and order *Tetrandria Monogynia*, and ranks in the natural order of *Aggregatæ*.

The characters are: that the calyx is a common perianth, many-flowered, spreading, many-leaved: leaflets in various rows surrounding the receptacle, and placed upon it, the inner ones gradually less: proper perianth double, both superior; outer shorter, membranaceous, plaited, permanent; inner five-parted, with the segments subulate-capillaceous: the corolla universal equal, often from unequal ones: proper one-petalled, tubular, four or five-cleft, equal or unequal: the stamina have four filaments, subulate-capillary, weak: anthers oblong, incumbent: the pistillum is an inferior germ, involved in its proper sheath as in a calycle: style filiform, length of the corolla: stigma obtuse, obliquely emarginate: there is no pericarpium: the seeds solitary, ovate-oblong, involute, crowned variously with proper calyxes: the receptacles common convex, chaffy, or naked.

The species mostly cultivated are: 1. *S. alpina*, Alpine Scabious; 2. *S. leucantha*, Snowy Scabious; 3. *S. succisa*, Devil's-bit Scabious; 4. *S. integrifolia*, Red-flowered Annual Scabious; 5. *S. tatarica*, Giant Scabious; 6. *S. gramuntia*, Cut-leaved Scabious; 7. *S. stellata*, Starry Scabious; 8. *S. atropurpurea*, Sweet Scabious; 9. *S. argentea*, Silvery Scabious; 10. *S. graminifolia*, Grass-leaved Scabious; 11. *S. Africana*, African Scabious; 12. *S. Cretica*, Cretan Scabious.



Painted by Syd Edwards London Publish'd Oct 1 [illegible] by G.Kearsley Fleet Street Engraved by F.Sansom

Scabiosa atropurpurea
Sweet Scabious

Scilla campanulata
Bell-flowered Squill

The first has a perennial root, composed of many strong fibres which run deep in the ground: the stems several, strong, channelled, upwards of four feet high: the leaflets four or five pairs, unequal in size and irregularly placed, ending in acute points: the flowers are on naked peduncles, at the ends of the branches, of a whitish yellow colour, appearing at the end of June. It is a native of the Alps of Switzerland, &c.

The second species has a perennial root: the lower leaves almost entire, serrate: stem stiff, two feet high, bifid at top, spreading; in the division arises a naked peduncle, which, as also the divisions, are each terminated by a single flower, composed of many white florets. It is a native of the south of France, &c.

The third has also a perennial, oblong, blackish root, near the thickness of the little finger, often growing obliquely, stumped at the lower end so as to appear as if bitten off, whence its trivial name, and furnished with long whitish fibres: the stem from a foot to eighteen inches in height, upright, branched at top, round, rough with hair, and often of a reddish colour: the branches are lengthened out, and each bears one flower: the root-leaves are ovate, quite entire, blunter than the others; the stem-leaves lanceolate, the lower ones remotely toothed, but the upper ones entire; all dark-green, rather coriaceous, harsh and hairy: the flowers in nearly globular heads. It is a native of Europe, flowering from August to the end of October.

The fourth species has an annual root: the stem is not hispid: the branches patulous: the root-leaves like those of the Daisy, ovate, bluntish, rugged, more acutely serrate; stem-leaves few; branch-leaves lanceolate, embracing, ciliate at the base, seldom toothed or pinnatifid, very long. It is a native of Germany, flowering from June to August.

The fifth rises with a strong branching stalk four or five feet high, closely armed with stiff prickly hairs; lower hairs spear-shaped, about seven inches long, and near four broad in the middle, deeply cut on the sides; the stem-leaves more entire, some of them sharply serrate; those at the top linear and entire: the flowers from the sides and at the top of the stalks, white, and each sitting in a bristly calyx: the root is biennial. It is a native of Tartary, &c.

The sixth species has the root-leaves villose, ash-coloured, deeply pinnatifid; with the pinnules blunt, distinct, the lower ones linear and entire, the upper gradually wider, blunt, gash-toothed: the stem-leaves bipinnate, with the leaflets linear, narrow, unequal, scarcely pubescent: the stem a foot and half in height: it flowers very late, even in November, and is perennial. It is a native of the south of France, &c.

The seventh is annual, the stems three feet high, hairy: the leaves oblong, deeply notched; the upper ones cut almost to the midrib into fine segments: the flowers on long peduncles: the receptacles are globular: the florets large, spreading open like a star, of a pale purple colour. It is a native of Spain and Barbary, flowering in July and August.

It varies with different jagged leaves, and with red and white flowers.

The eighth species has a fibrous annual biennial root, crowned with a large tuft of oblong leaves, variously jagged and cut on the edges: the stems upright, numerously branched on every side, three feet high or more: the calyx is twelve-leaved, recurved, linear, the length of the corolla: the flower very dark purple, with white anthers: the fruit ovate: the receptacle subulate, with bristle-shaped chaffs. It flowers from June to October: the flowers are very sweet, and there is a great variety in their colour, some being of a purple approaching to black, others of a pale purple, some red and others variegated. It also varies in the leaves, some being finer cut than others: and sometimes from the side of the calyx come out many slender peduncles sustaining small flowers, like the (proliferous or) Hen-and-chicken Daisy.

The ninth is a low perennial plant, with a branching stalk spreading wide on every side; the leaves are of a silvery colour; the flowers are small, pale, and have no scent: the stem has white hairs thinly scattered over it: the root-leaves are somewhat toothed: stem-leaves undivided, and ciliate towards the base. It is a native of the Levant, flowering from June to October.

The tenth species has a perennial root, from which arise three or four stalks, the lower parts of which have linear leaves about four inches long, and the eighth of an inch broad, of a silvery colour, ending in acute points: the upper part of the stalk is naked for six or seven inches in length, and sustains at the top one pale-blue flower. It is a native of the mountains of Dauphiné flowering in July.

The eleventh has a weak shrubby stalk, which divides into several branches, and rises about five feet high: the leaves are ovate-lanceolate, three inches long, and an inch and half broad, deeply crenate, of a light green, and a little hairy: the peduncle terminating, sustaining one pale flesh-coloured flower. It is a native of Africa, flowering from July to October: it varies in the leaves. The variety with the leaves finely cut, has, according to Miller, the stalks hairy, and dividing into several branches: the bottom leaves are lanceolate crenate and entire: but those on the upper part of the stalk are bipinnate: the flowers are produced on long naked footstalks from the end of the branches; are of a pale flesh-colour and large, but no scent.

The twelfth rises with a shrubby stalk three feet high, and divides into several woody knotty branches: the leaves are narrow, silvery, entire, four inches long, and a quarter of an inch broad: the flowers stand upon very long naked peduncles at the end of the branches, and are of a fine blue colour. It is a native of Candia and Sicily. According to Miller, the plant from Candia has shorter and much broader leaves, and not so white as those of the Sicilian; the flowers are not so large, and are of a pale purple colour.

Culture.—All the annual and biennial sorts may be increased by seed, which should be sown in a bed or border of common mould, or in pots to be forwarded in the hot-bed in the early spring months; but the biennial sort is better sown in the latter end of the summer, as about August, as they flower stronger and more fully the following summer. Some may however be sown at both seasons.

When the plants have attained some growth, in the spring-sown sort, they should be pricked out in the places where they are to grow, on beds, to be afterwards removed: and in the autumn-sown sorts into nursery-rows, six or eight inches apart, to be removed into the places where they are to remain, with balls about their roots, in the following spring, being duly watered and kept free from weeds.

The starry sort is best sown in patches in the borders or clumps where the plants are to flower.

The herbaceous perennial kinds may be readily increased by sowing the seeds in a bed or border of good light earth, in the spring season, the plants being planted out when they have attained a little growth where they are to grow: they are also capable of being raised by parting the roots and planting them out where they are to grow in the autumn.

The shrubby kinds may be readily raised by planting slips or cuttings of the young branches in the spring or summer season, in the former season in pots, and plunged in a moderate hot-bed, or under a glass frame; but in the latter, in the open ground, being well shaded and watered. They soon become tolerably well rooted, and in the autumn may be potted off into separate pots filled with light loamy earth, and managed in the same manner as other exotic green-house plants during the winter.

The annual and perennial sorts afford ornament and variety among other plants of the flower kind in the borders, &c. and the shrubby kinds produce variety in green-house collections.

2. SCILLA CAMPANULATA.

BELL-FLOWERED SQUILL.

This genus contains plants of the hardy, bulbous-rooted, perennial kind.

It belongs to the class and order *Hexandria Monogynia*, and ranks in the natural order of *Coronariæ*.

The characters are: that there is no calyx: the corolla has six ovate petals, spreading very much, deciduous: the stamina have six awl-shaped filaments, shorter by half than the corolla: anthers oblong, incumbent: the pistillum is a roundish germ: style simple, length of the stamens, deciduous: stigma simple: the pericarpium is a subovate capsule, smooth, three-grooved, three-celled, three-valved: the seeds many, roundish.

The species are: 1. *S. maritima*, Officinal Squill; 2. *S. Lilio-Hyacinthus*, Lily-rooted Squill; 3. *S. Italica*, Italian Squill; 4. *S. Peruviana*, Peruvian Squill; 5. *S. amœna*, Nodding Squill; 6. *S. campanulata*, Spanish Squill; 7. *S. autumnalis*, Autumnal Squill.

The first has a very large root, somewhat pear-shaped, composed of many coats as in the Onion, and having several fibres coming out at the bottom, and striking deep in the ground. From the middle of the root arise several shining leaves, a foot long, and two inches broad at their base, lessening all the way to the top, where they end in points; they continue green all the winter, and decay in the spring: then the flower-stalk comes out, rising two feet high, naked about half way, and terminated by a pyramidal thyrse of flowers, which are white. It is a native of Spain, Portugal, &c. flowering here in April and May.

There are varieties with a red, and with a white root.

The second species has a scaly root like the Lily; it is oblong and yellow, very like that of Martagon: the leaves are shaped like those of the White Lily, but are smaller: the stalk is slender, and rises a foot high; it is terminated by blue flowers, which appear in June. It is a native of Spain, Portugal, &c.

The third has a roundish solid bulb, like that of the hyacinth: the leaves come out sparsedly, and are very like those of the English hare-bells: the stem seven or eight inches high, terminated by clustered flowers of a pale blue colour; at first disposed in a sort of umbel or depressed spike, but afterwards drawing up to a point and forming a conical corymb.

The fourth species has a large solid root, raised a little pyramidal in the middle, covered with a brown coat, from this come out before winter five or seven leaves, six or eight inches long, of a lucid green, keeled, and spreading almost flat on the ground: from the centre of these come out one, two, or three scapes, thick, succulent, six or eight inches high, terminated by a conical corymb of flowers, upon pretty long pedicels.

There are varieties with a deep blue, and with a white flower; it is often known by the name of Hyacinth of Peru. It is a native of Spain, Portugal, and Barbary.

The fifth has a large solid purplish root, from which come out five or six leaves, lying on the ground, above a foot long, and an inch broad, keeled, channelled, and of a lucid green; from among these arise two, three, or four purplish stalks, eight or nine inches high, sustaining towards the top five or six flowers, which come out singly from the side; they are of a violet-blue colour, and appear in April. It is a native of the Levant.

In the sixth species the bulb is oblong, white, whence come out five or six leaves a foot long, and half an inch broad, of a lucid green, and a little keeled: scape nine or ten inches high, firm, and sustaining many flowers at the top, disposed in a loose panicle, each on a pretty long pedicel which is erect, but the flower itself nods: the corolla is of a deep blue-violet colour. It is a native of Spain and Portugal, flowering in May.

The seventh has the bulb ovate-roundish, coated, whitish: the leaves numerous, much shorter than the scape, two or three inches long, linear, obtuse, channelled, spreading, scape from three or four to six inches in height, round, upright, striated, below whitish green, above purplish, appearing villose when magnified. Sometimes there is a second scape: the flowers six, ten, or even twenty in a corymb, which is soon lengthened out into a raceme. It is a native of France, Spain, &c.

It is observed, that " most old writers distinguish a larger and a smaller sort; but these differ merely in size: and some have noticed a variety with white flowers."

Culture.—These plants may be increased by offsets from the roots, and by seeds, but the first is the better mode.

The offsets may be taken off every other year, and be planted out at the time the leaves and stems decay.

The seed should be sown in the autumn, on light mould, in shallow boxes or pans, in the same manner as the Hyacinth, the same circumstances being attended to in the culture. The plants are long in flowering in this way, except in the last species, which should have a dry loamy soil.

The first sort, as being a native of the sea-shores, cannot be well propagated in other situations, as the plants are apt to be destroyed by the frosts in winter, and to grow indifferently in the summer season from the want of salt water.

They afford variety in the beds and borders of pleasure-grounds.

PLATE LII.

1. SEDUM ANACAMPSEROS.

EVERGREEN ORPINE.

This genus contains plants of the hardy herbaceous succulent kind.

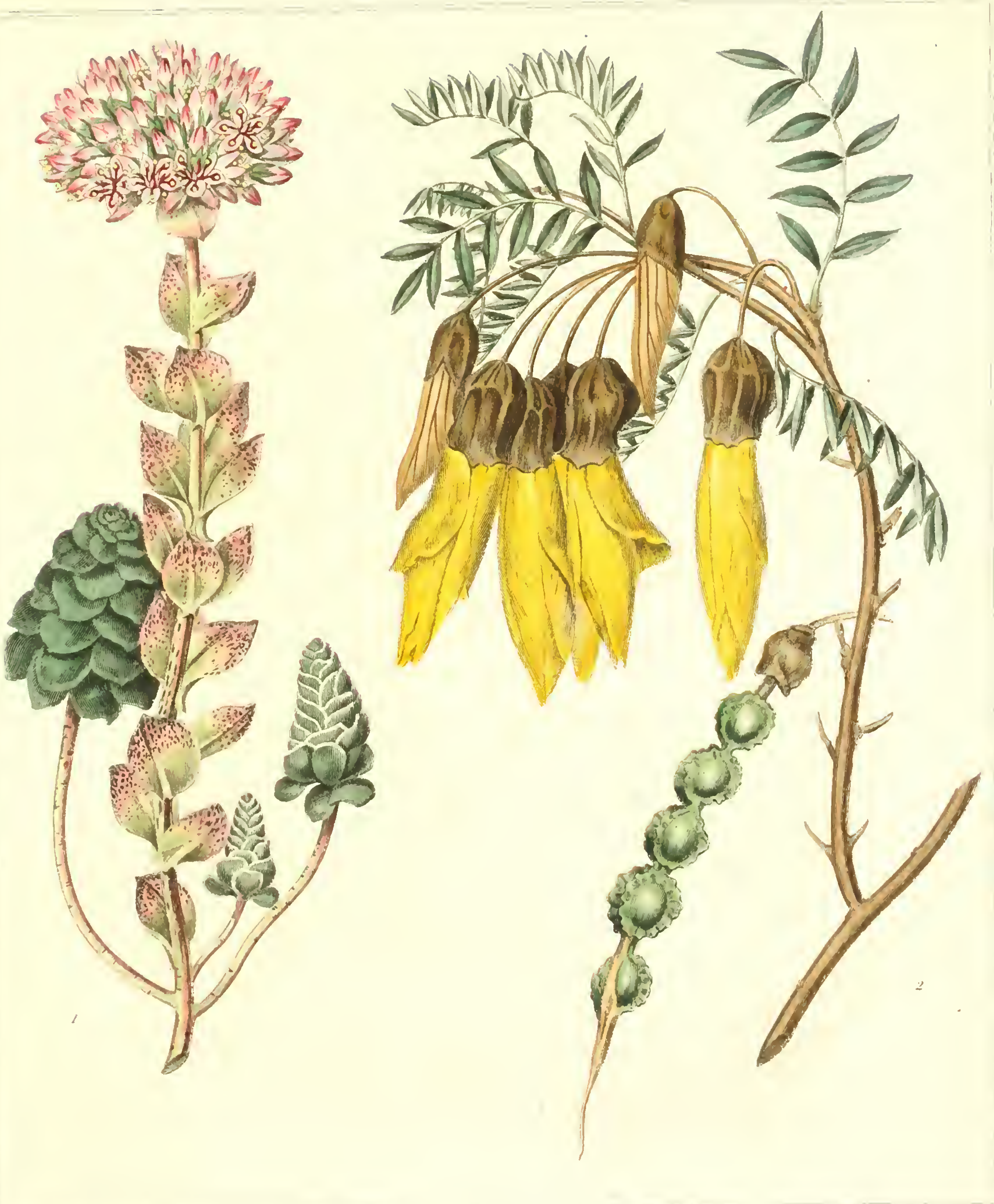
It belongs to the class and order *Decandria Pentagynia*, and ranks in the natural order of *Succulentæ*.

The characters are: that the calyx is a five-cleft perianth, acute, erect, permanent: the corolla has five petals, lanceolate, acuminate, flat, spreading: nectaries five; each a very small emarginate scale, inserted into each germ at the base on the outside: the stamina have ten awl-shaped filaments, length of the corolla: anthers roundish: the pistillum has five oblong germs, ending in more slender styles: stigmas obtuse: the pericarpium five capsules, spreading, acuminate, compressed, emarginate towards the base, opening on the inside longitudinally by a suture: the seeds numerous, very small.

The species cultivated are 1. *S. Telephium*, Orpine Stonecrop; 2. *S. Anacampseros*, Evergreen Orpine; 3. *S. Aizoon*, Yellow Stonecrop; 4. *S. populifolium*, Poplar-leaved Stonecrop; 5. *S. stellatum*, Starry Stonecrop; 6. *S. Cepæa*, Purslane-leaved Stonecrop; 7. *S. dasyphyllum*, Thick-leaved Stonecrop; 8. *S. reflexum*, Yellow Stonecrop; 9. *S. rupestre*, Rock Stonecrop; 10. *S. Hispanicum*, Spanish Stonecrop; 11. *S. album*, White Stonecrop; 12. *S. acre*, Biting Stonecrop, or Wall Pepper; 13. *S. sexangulare*, Insipid Stonecrop; 14. *S. Anglicum*, English or Mild White Stonecrop; 15. *S. annuum*, Annual Stonecrop.

The first has a perennial tuberous root: the stems from one to

Pl 52



Painted by Syd Edwards London Published Nov 1st 180[illegible] by G. Kearsley Fleet Street

1 Sedum Anacampseros
Evergreen Orpine

2 Sophora Tetraptera
Winged Podded Sophora

two feet high and upwards, upright, simple or unbranched, leafy, round, smooth, solid, reddish and often dotted with red: the leaves almost covering the stem, sessile, ovate, fleshy, tooth-serrate, smooth and even, of a bluish-green colour: the corymbs terminating, many-flowered, close or heaped together: the flowers deep purple, very rarely white in this climate, though that seems to be the most common colour in some foreign countries. It is a native of Portugal.

There are several varieties, as with purple flowers, with white flowers, with broad leaves, and the Greater Orpine.

The second species has fibrous perennial roots: the stems trailing: the leaves standing alternate round the stems, almost an inch long, and half an inch broad: the flowers in a compact corym, sitting close on the top of the stem: they are star-shaped, of a purple colour, and appear in July. It is an evergreen; and a native of Germany.

The third has a perennial root, composed of many thick fleshy fibres, from which come out several stalks rising near a foot high: the leaves are alternate on every side, thick, two inches and a half long, and three quarters of an inch broad, and slightly serrate: the flowers bright yellow. It is a native of Siberia, flowering from July to September.

The fourth species has the leaves cordate, thick and fleshy: the stem herbaceous, branched, erect, patulous, even, a foot high: the leaves alternate, remote, only at the ramifications, blunt, fleshy, smooth. When it grows in an open situation, exposed to the sun, the leaves and stalks become of a bright red colour. It is a native of Siberia, and the only hardy Sedum cultivated with us that has a shrubby stalk: the leaves are deciduous. It flowers in July and August, and is proper for a rock plant.

The fifth is a low annual plant: the stalks rise three inches high, dividing at top into two or three parts: the flowers come out singly from the side of the stalk; are white, star-pointed, and succeeded by star-pointed rough capsules. It is a native of Germany, &c.

The sixth species has also an annual root: the stalks six or seven inches high, dividing into smaller branches, which sustain small white flowers, growing in large panicles. It is a native of Germany, France, &c.

There is a variety which has the stem more erect, and the lower leaves in threes or fours, the next opposite, and the uppermost alternate.

The seventh has a perennial (biennial) root, composed of small white fibres: the stems numerous, weak, prostrate and creeping, about three inches long or somewhat more, branched, in tufts, round, weak, clammy, leafy: the flowering branches erect: the leaves mostly opposite, closely imbricate, sessile, very thick and fleshy, broader than long, convex on the lower, nearly plane on the upper surface, glaucous often with a tinge of purple; dotted and sometimes having a net of red veins: on the flowering branches they are alternate. It is a native of many parts of Europe, as France, &c.

When introduced into a garden, it propagates itself freely upon walls, in waste places, and about garden pots; and no plant is better adapted to the purpose of decorating rock-work, as it grows without any trouble, in any aspect, multiplying very much by young shoots, and always looks beautiful.

The eighth species has also a perennial root: the stems round, leafy, branched at the base, often hanging down, erect at the top: the leaves scattered, alternate, adnate-sessile, loose at the base, and produced, erect above, compressed, acuminate, extremely succulent, smooth, rather glaucous, frequently tinged with red; the lower ones turned back; when old they easily fall off: the flowers are in a terminating subcymed panicle, with many-flowered branches, for the most part recurved: the flowers erect, bright yellow. It is a native of Europe, and is common here on walls and thatched roofs, and rocks in the northern counties, flowering in July.

The ninth is a little smaller than the eighth: the leaves closely imbricate (before flowering) in five or six rows, glaucous, flatted a little, acuminate; on the flowering stem somewhat remote, as in that sort, all erect, not bent back at the point. According to Withering, the disposition of the leaves in five or six rows may be best observed by viewing the plant with the ends of the branches opposed to the eye: the panicle subcymed, many-flowered, with the branchlets scarcely reflexed: the flowers of a bright yellow or gold colour, often six-cleft. It is a native of England and Wales, &c. perennial, flowering in July.

This, as well as the above, is cultivated in Holland and Germany to mix with lettuces in salads.

The tenth has a slender, fibrous, perennial root: the stems several, a hand high, reclining at the base, and then erect, round, tinged with red: the leaves, on the flowering stems, pale green dotted with purple, oblong, thickish, round on one side and flat on the other; towards the top, under the flowers, more swelling and shorter: leaves on young plants or barren shoots, in bundles, glaucous, without any purple dots, thinner, from a narrow base widening gradually, and ending in a blunt point: the stems divide at top into a few branchlets, forming a sort of umbel, (or rather cyme) bearing sessile, star-like white flowers, stained with pale purple from a purple groove running along the petals: these are six, sometimes seven in number, keeled and cusped. It is a native of Spain and Carinthia, flowering in July.

The eleventh species has a perennial, fibrous root: the stems decumbent at bottom, and there throwing out fibres; flowering stems upright, from three inches to a span in height, round, leafy, branched, smooth: the leaves scattered thinly, spreading out horizontally, sessile, cylindrical, very blunt, smooth, fleshy, somewhat glaucous and generally reddish: panicle terminating, alternately branched, subcymose, many-flowered, smooth. It is a native of Europe, on rocks, walls and roofs, flowering in July.

It is eaten by some as a pickle.

The twelfth has also a perennial, fibrous root: the stems numerous, growing in tufts, much branched, decumbent, and creeping at the base, then upright, three inches high, smooth, round, very leafy: the leaves closely imbricate, blunt, flatted a little, from upright spreading, loose at the base: the cymes terminating, solitary, few-flowered: the flowers erect, sessile. It is a native of Europe, flowering in July.

The thirteenth species has the habit of the preceding sort, but is somewhat larger: the leaves are subcylindrical; not ovate, and come out mostly by threes in a double row, and hence appear to be imbricate in six rows; this is most obvious in the young shoots: they are very spreading, loose at the base, and scarcely gibbous: the cyme is leafy: the flowers of a golden-yellow colour. It is not acrid. It is a native of many parts of Europe, flowering at the end of June.

The fourteenth has an annual, fibrous root: the stems in tufts, decumbent at the base, smooth, red, leafy: the leaves mostly alternate or nearly opposite, bluntish, somewhat glaucous, produced and loose at the base: the cymes terminating, solitary, almost leafless, racemed: the flowers erect, five-cleft. It is a native of Britain and Norway.

The fifteenth species is also an annual plant, with an erect stalk, seldom rising above two or three inches high; the leaves are of a grayish colour: the flowers are small and white, and grow at the top of the stalk, in a reflexed spike. It is a native of the North of Europe.

Culture.—These plants are all raised without much difficulty, by proper care and attention to have the soil dry and of the poor sandy kind.

Culture in the Orpine sorts.—These may all be readily increased by planting cuttings, during the summer months, in light mould in a shady situation, or in pots placed in similar situations. The plants in the open ground, as well as those in pots, should be kept clean from weeds, and be watered frequently when the weather is dry.

They may likewise be raised by parting the roots, and planting them in a similar manner in the spring or autumn. When the plants are once well established, they spread rapidly, and require little or no care.

Culture in the Stonecrop kind.—These are raised without much trouble, by planting out their trailing stalks in the spring or summer season, which readily take root. They thrive most perfectly on old walls, buildings, or rock-works. Where cuttings or roots of the perennial kinds are planted in some soft mud, placed upon such situations, they quickly take root and spread into the different joints and crevices, covering the whole in a very short time.

The seeds of the annual sorts also, when sown soon after they become ripe in such situations, soon come up and support themselves without further trouble.

Most of the perennial sorts are kept in the nurseries in full plants, fit for setting out in the borders, pots, &c. either in the spring for flowering the same year, or in the autumn to flower in the following year.

These plants may be planted out in any dryish light soil, in borders, beds, and other places, and in the sides of dry banks, or in any elevated rubbishy soil, as well as in pots to move to different parts occasionally; or also some of the evergreen kinds, to introduce in their pots among winter plants under shelter, to increase the variety. In most sorts, they may also be introduced as rock plants, to embellish artificial rock-works, ruins, and other similar places in pleasure-grounds. The Stonecrops and other low trailing kinds may also be made to occupy the tops of any low walls, pent-houses, sheds, or other low buildings.

The twelfth and thirteenth sorts may likewise be disposed in patches towards the front of borders, &c. as they spread thick and tufty close to the ground, and flower abundantly; and being planted in pots, are proper to place in the outside of windows, copings of low walls, and in balconies, and court yards, in assemblage with other low fancy plants; they will closely overspread the surface, and flower profusely as far as they extend.

2. SOPHORA TETRAPTERA.

WINGED-PODDED SOPHORA.

This genus contains plants of the herbaceous, flowery, perennial, and shrubby exotic kinds.

It belongs to the class and order *Decandria Monogynia*, and ranks in the natural order of *Papilionaceæ* or *Leguminosæ*.

The characters are: that the calyx is a one-leafed perianth, short, bell-shaped, gibbous at the base above: mouth five-toothed, oblique, obtuse: the corolla papilionaceous, five-petalled: standard oblong, gradually wider, straight, reflexed at the sides: wings two, oblong, appendicled at the base, length of the standard: keel two-petalled, with the petals conformable to the wings, the lower margins approximating and boat-shaped: the stamina have ten filaments, distinct, parallel, awl-shaped, length of the corolla within the keel: anthers very small, rising: the pistillum is an oblong germ, cylindrical: style size and situation of the stamens: stigma obtuse: the pericarpium is a legume very long, slender, one-celled, knobbed at the seeds: the seeds very many, roundish.

The species cultivated are: 1. *S. tetraptera*, Wing-podded Sophora; 2. *S. microphylla*, Small-leaved Shrubby Sophora; 3. *S. alopecuroides*, Fox-tail Sophora; 4. *S. australis*, Blue Sophora; 5. *S. tinctoria*, Dyer's Sophora; 6. *S. alba*, White Sophora; 7. *S. tomentosa*, Downy Sophora; 8. *S. occidentalis*, Occidental Sophora; 9. *S. japonica*, Shining-leaved Sophora; 10. *S. capensis*, Vetch-leaved Sophora; 11. *S. aurea*, Golden-flowered Sophora; 12. *S. myrtillifolia*, Round-leaved Sophora.

The first is a magnificent tree, displaying its pendulous branches of large golden flowers in May and June. It is a native of New Zealand.

The second species is a smooth tree, with small leaves almost wedge-shaped; the flowers large and yellow; the legume compressed, torulose, flat at the back and belly, keeled at the sides with longitudinal membranes. It is a native of New Zealand, flowering in May and June.

The third has a perennial creeping root, from which arise several erect stalks from three to four feet high: the leaves unequally pinnate: the flowers pale blue and small, in long axillary spikes standing erect close to the stalk: they smell sweet. It is a native of the Levant, flowering in July and August.

The fourth species has a herbaceous stem, most commonly decumbent: the leaves cuneate-oblong, smooth, yellowish green; the stipules ensiform, longer than the shortest petiole; the flowers are blue. It is a native of Carolina, flowering in June and July.

The fifth has a perennial root, from which arise several stalks about a foot and half high, sending out from the bottom a great number of small branches: the flowers come out towards the end of the branches in short spikes; are yellow, and appear in July. It is a native of Barbadoes and Virginia.

The sixth species has the stem even, high, dark purple: the leaves like those of Laburnum, even, elliptic, smooth on both sides, an inch and half long: the stipules scarcely any: the raceme a foot long, pendulous: the flowers white, the size of those of Laburnum. It flowers in June, and is a native of Virginia and Carolina.

The seventh species has a downy stem, six or seven feet high: the leaves unequally pinnate, composed of five or six pairs of leaflets: the flowers in short loose axillary spikes, large and yellow, not unlike those of Spanish Broom, void of scent: the pods larger, woolly, five or six inches long, having four or five large swellings, in each of which is a roundish brown seed as big as a pea. It is a native of Ceylon.

The eighth is a shrub, with a round hoary-pubescent stem, and round spreading subtomentose branches, six or seven feet in height: the leaves on alternate, long, spreading, round, hoary petioles, thickened at the base: leaflets opposite, mostly six-paired with an odd one, entire, flat, hoary, white tomentose beneath, on short round petioles: the flowers in a sort of spike: the peduncle terminating, erect, a foot long, simple, round, many-flowered: flowers close, biggish, peduncled, yellow. It is a native of the West Indies; flowers there in May and June.

The ninth species has the branches round, even, purplish: the leaves alternate, unequally pinnate; leaflets subopposite, on very short petioles, oblong, blunt with a point, quite entire, glaucous beneath, smooth, spreading an inch long: the flowers on panicled racemed branchlets, of a white colour. It is a native of Japan.

The tenth is a tender pubescent shrub, when more advanced in its wild state naked: the leaves alternate, unequally pinnate: leaflets twenty-three, narrow-lanceolate, equal, quite entire, shining above, subtomentose beneath: the raceme terminating, composed of white recurved flowers. It is a native of the Cape.

The eleventh species is a shrub the height of a man: the root has the smell and taste of liquorice: the stem upright, round tubercled, gray: branches alternate, spreading, like the stem: the leaves alternate, unequally pinnate, spreading, eight inches long: petioles round on one side, channelled on the other, pubescent: the leaflets from twelve to fifteen pairs, opposite, on short petioles, those of the outmost longer, quite entire, one-nerved, bright green, paler beneath, spreading very much, flat: the stipules linear, acute, pubescent, brownish, erect, permanent: the racemes axillary, solitary, peduncled, spreading, bracted, pubescent, four or five inches long: the flowers alternate, nodding, yellow, eight or nine lines in length, on round pedicels jointed at the top. It is a native of Africa, and flowers there in July.

The twelfth has a shrubby, round, leafy, even stem: the branches almost upright, tomentose, somewhat angular towards their tops: the leaves scattered, on short petioles, ten lines long, and four broad, quite entire, rounded at the end with a reflexed point, grooved above and keeled beneath, coriaceous. On each side of the petiole an awl-shaped tomentose stipule, twice as long as the petiole: the flowers towards the end of the branches from the axils of the leaves, solitary, on peduncles the length of the adjacent leaf, white-tomentose: seldom two-flowered. It is a native of the Cape, flowering from November to January.

Culture.—The first five sorts are hardy, and may be increased by seeds or parting the roots.

The seeds should be sown in the spring in pots of fine mould, and when the plants are come up they should be removed into separate pots, till they have obtained sufficient strength, when they may be planted out where they are to grow.

The roots may likewise, in many of the sorts, be parted at the same season and planted in pots, or where they are to remain.

The first and second sorts may also be raised from cuttings and layers, planted or laid down at the same season. These, when planted against a wall, so as to be protected from frost in winter, succeed very well.

All the other sorts are tender, and require the hot-house or stove. They are increased by sowing the seed in the early spring, in pots filled with fine mellow light mould, and plunged in the hot-bed under glasses, or in the bark-bed. When the plants have advanced a little in growth, they should be removed into separate pots, filled with soft loamy mould, being well watered and replunged in the bark-bed till fresh rooted; being afterwards managed as other exotic stove plants, but with little water. They likewise sometimes succeed by layers and cuttings, treated in the same manner.

The first sorts afford variety in the borders and among potted plants, and the latter in stove collections.

PLATE LIII.

1. SEMPERVIVUM ARACHNOIDEUM.

COBWEB HOUSELEEK.

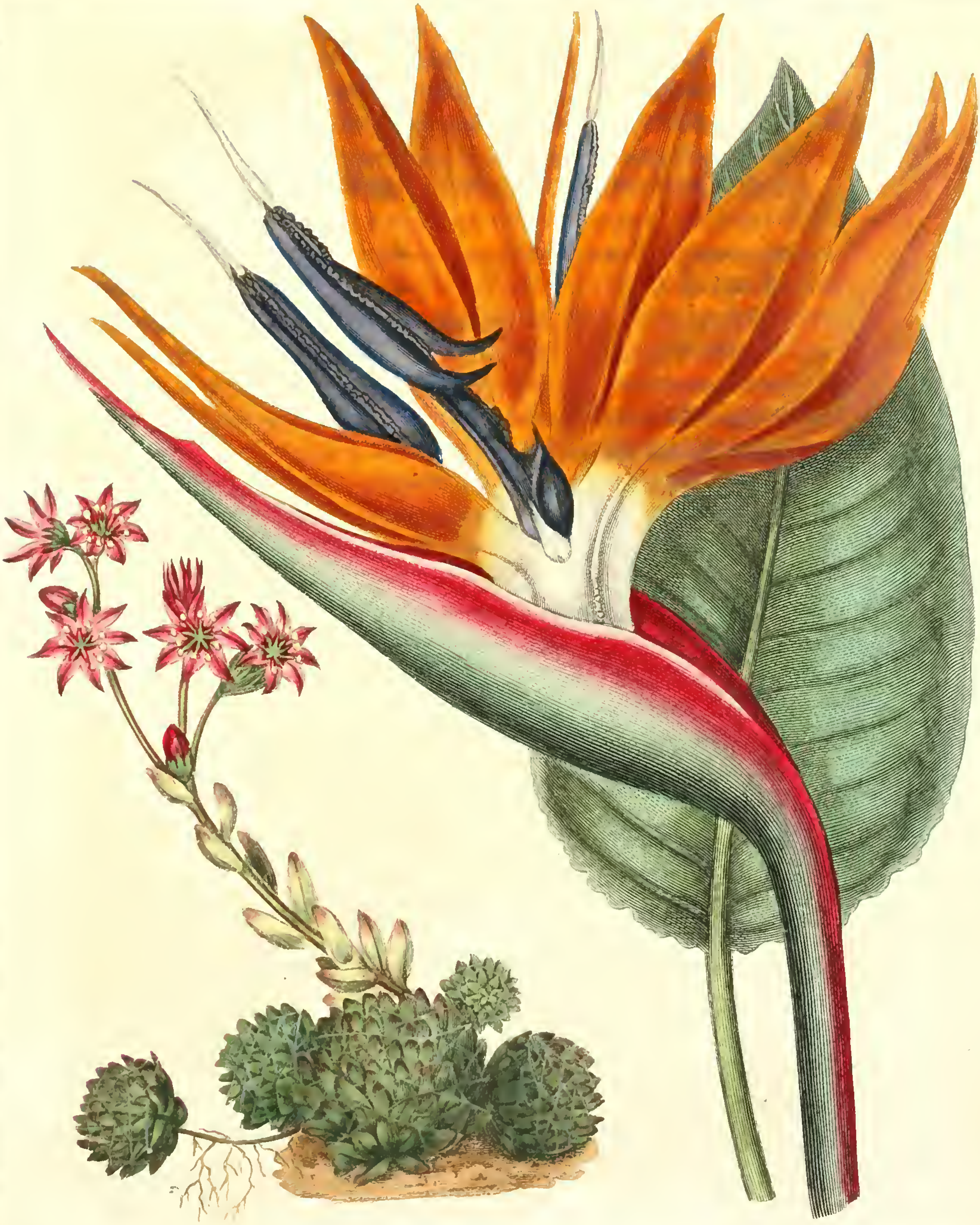
This genus contains plants of the succulent, hardy, herbaceous, evergreen, and shrubby perenial kinds.

It belongs to the class and order *Dodecandria Polyginia*, (Dodecagynia,) and ranks in the natural order of *Succulentæ*.

The characters are: that the calyx is a six to twelve-parted perianth, concave, acute, permanent: the corolla has six to twelve petals, oblong, lanceolate, acute, concave, a little bigger than the calyx; the stamina have from six to twelve filaments (or more), subulate-slender: anthers roundish: the pistillum from six to twelve germs, in a ring, erect; ending in as many spreading styles: stigmas acute.

The species cultivated are: 1. *S. tectorum*, Common Houseleek; 2. *S. globiferum*, Globular Houseleek; 3. *S. arachnoideum*, Cobweb Houseleek; 4. *S. montanum*, Mountain Houseleek; 5. *S. arboreum*, Tree Houseleek; 6. *Canariense*, Canary Houseleek.

The first has a perennial fibrous root: the root-leaves in form of a full-blown double-rose, sessile, wedge-shaped or obovate, somewhat more than an inch long, very fleshy, thick, flat above, a little convex beneath, keeled and whitish, smooth on both sides, the edges fringed with hairs and generally tinged with red, pointed, upright, gradually smaller inwards: offsets on long footstalks, globular, the size of a pigeon's egg or larger, composed of erect leaves lying over each other: the flowering-stem upright, from nine inches to a foot in height, round, fleshy, pubescent, having alternate, lanceolate, thinner leaves on it, of a reddish colour, at top branched and form-



Painted by Syd. Edwards London Publiſhed Aug^st 1 1806 by G. Kearsley Fleet Street Engrav by F. San

1 Sempervivum Arachnoideum
Cobweb Houseleek

2 Strelitzia Reginæ
Canna leaved Strelitzia

ing a sort of corymb; the branches spreading and bending back: the flowers numerous, clustered, upright, pubescent, flesh-coloured, all growing one way. It is a native of Europe, flowering in July.

The second species has the leaves much narrower, and the heads furnished with a greater number of them than those of the first sort, which grow more compact, and are closely set on their edges with hairs: the offsets are globular, their leaves turning inward at the top, and lying close over each other; these are thrown off from between the larger heads, and, falling on the ground, take root, whereby it propagates very fast: the flower-stalks are smaller, and do not rise so high as those of the former; and the flowers are of a paler colour. It is a native of Russia, Austria, &c. flowering in June and July.

The third has much shorter and narrower leaves than the first: the heads are small and very compact: the leaves are gray, sharp-pointed, and have slender white threads crossing from one to the other, intersecting each other in various manners, so as in some measure to resemble a spider's web: the flower-stalks about six inches high, succulent and round, having awl-shaped succulent leaves placed on them alternately: the upper part divides into two or three branches, upon each of which is a single row of flowers ranged on one side; each composed of eight lanceolate petals, of a bright red colour, with a deep-red line running along the middle; they spread open in form of a star. It is a native of Switzerland and Italy, flowering in June and July.

The fourth species greatly resembles the first, but the leaves are smaller, and have no indentures on their edges: the offsets spread out from the side of the older heads, and their leaves are more open and expanded: the flower-stalk is nine or ten inches high, having some narrow leaves below; the upper part is divided into three or four branches, closely set with deep red flowers composed of twelve petals, and twenty-four stamens with purple anthers. It is a native of Germany, &c. flowering in June and July.

The fifth rises with a fleshy smooth stalk eight or ten feet high, dividing into many branches, which are terminated by round heads or clusters of leaves lying over each other like the petals of a double rose, succulent, of a bright green, and having very small indentures on their edges: the stalks are marked with the vestiges of the fallen leaves, and have a light brown bark: the flower-stalks rise from the centre of these heads; and the numerous bright-yellow flowers form a large pyramidal spike, or thyrse. It is a native of Portugal, &c. flowers through the winter, commonly from December to March.

The sixth species seldom rises above a foot and a half high, unless the plants are drawn up by tender management: the stalk is thick and rugged, chiefly occasioned by the vestiges of decayed leaves: at the top is a very large crown of leaves, disposed circularly like a full-blown rose, large, succulent, soft to the touch, and pliable, ending in obtuse points which are a little incurved: the flower-stalk comes out from the centre, and rises near two feet high, branching out from the bottom, so as to form a regular pyramid of flowers, which are of an herbaceous colour. It is a native of the Canary Islands, flowering in June and July.

A variety of this with variegated leaves was obtained from a branch accidentally broken from a plant of the plain sort, at Badmington, the seat of the Duke of Beaufort.

Culture.—The different herbaceous sorts are all capable of being increased without difficulty by planting their off-set heads, which should be slipped with a few root fibres to them, and planted in the spring season on rubbish rock-works, or other places, or in pots for variety: and the tender green-house sorts may be raised from cuttings of the branches and from seeds; but the first is the better method.

The cuttings should be made from the smaller branches in the early summer months, and be planted out in pots, or a bed of fine earth, in warm shaded situations: where the cuttings are succulent, they should be laid in a dry place for a few days to heal over the cut part; they should be shaded from the sun; and those in pots lightly watered in dry weather: when they are become well rooted, they should be carefully removed into separate pots of a middle size, being placed in the green-house. Some forward these plants by means of bark hot-beds.

The seeds of the Canary kind should be sown in the autumn or early spring in pots of light mould, placing them in a garden-frame to protect them from frost, having the air freely admitted in mild weather: when the plants are come up, and have a little strength, they should be removed into small pots and placed in the green-house.

The first sorts are ornamental on walls, buildings, and rock-works as well as in pots; and the last two kinds among other potted green-house plants.

2. STRELITZIA REGINÆ.

CANNA-LEAVED STRELITZIA.

THIS genus affords a plant of the herbaceous exotic perennial kind.

It belongs to the class and order *Pentandria Monogynia*, and ranks in the natural order of *Scitamineæ*.

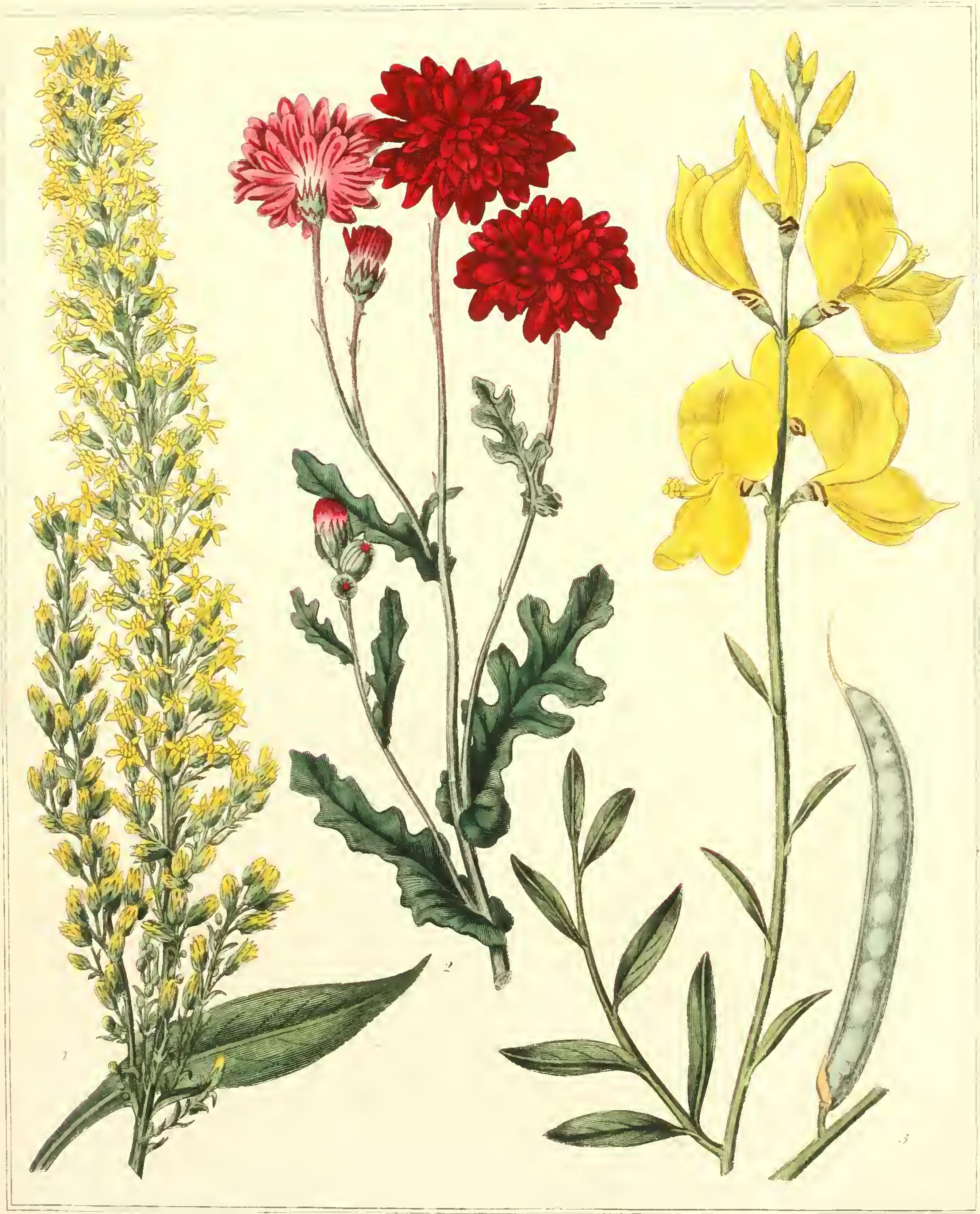
The characters are: that the calyx is an universal spathe, terminating, one-leafed, channelled, acuminate, from spreading declining, many-flowered, involving the base of the flowers; partial spathes lanceolate, shorter than the flowers: perianth none: the corolla is irregular: petals three, lanceolate, acute; the lowest boat-shaped; the two upper bluntly keeled: nectary three-leaved: the two lower leaflets a little shorter than the petals, from a broad base awl-shaped, waved at the edge, folded together, including the genitals, towards the tip behind augmented with a thick appendix, in form of half an arrow head; the lowest leaflet short, ovate, compressed, keeled: the stamina have five filaments, filiform, placed on the receptacle: three in one leaflet of the nectary; two with the style enclosed in the other leaflet: anthers linear, erect, commonly longer than the filaments, included: the pistillum is an inferior germ, oblong, obtusely three-cornered: style filiform, length of the stamens: stigmas three, awl-shaped, higher than the petals, erect, at the beginning of flowering time glued together: the pericarpium is a subcoriaceous capsule, oblong, obtuse, indistinctly three-cornered, three-celled, three-valved: the seeds numerous, adhering in a double row to the central receptacle.

The species is *S. Reginæ*, Canna-leaved Strelitzia.

It has all the leaves radical, petioled, oblong, quite entire, with the margin at bottom waved and curled, very smooth, glaucous beneath, coriaceous, a foot long, permanent: the petioles somewhat compressed, three feet long and more, the thickness of the thumb, sheathing, erect, smooth: the scape the length and thickness of the petioles, erect, round, covered with alternate, remote, acuminate sheaths, green with a purple margin: the general spathe a span long, green on the outside, purple at the edge; partial spathes whitish: the petals yellow, four inches long: the nectary blue: according to Curtis, the spathe contains about six or eight flowers, which becoming vertical as they spring forth, form a kind of crest, which the glowing orange of the corolla, and fine azure of the nectary, render truly superb. A native of the Cape.

Culture.—These plants are raised from seeds, brought from their native situation, and sown in pots of good fine mould, plunged in a hot-bed to get them up; the plants when of some growth should be removed into separate pots, and be replunged in the tan-pit of the stove; afterwards, when the plants are large, they should have plenty of mould, that the roots may be extended into the rotten tan, and in that way render them more strong for blowing their flowers: it may likewise sometimes be raised from the roots, when they are suffered to strike in the above manner; it is said to succeed best in the dry stove and conservatory.

It is highly ornamental among stove plants.



Painted by Syd Edwards London Publiſhed Mar 1 1806 by G Kearsley Fleet Street Engraved by F Sanſom

1 Solidago stricta
Willow leaved Golden Rod

2 Senecio elegans
Double purple Groundsel

3 Spartium junceum
Spanish Broom

PLATE LIV.

1. SOLIDAGO STRICTA.

WILLOW-LEAVED GOLDEN ROD.

This genus contains plants of the tall, herbaceous, flowering, perennial kind.

It belongs to the class and order *Syngenesia Polygamia Superflua*, and ranks in the natural order of *Compositæ Discoideæ*.

The characters are: that the calyx is oblong, imbricate, common: scales oblong, narrow, acuminate, straight, converging: the corolla is compound radiate: corollets hermaphrodite tubular, very many, in the disk:—female ligulate, fewer than ten, (commonly five) in the ray: proper of the hermaphrodite funnel-form, with a five-cleft, patulous border: – female ligulate, lanceolate, three-toothed: the stamina in the hermaphrodites: filaments five, capillary, very short: anthers cylindrical, tubular: the pistillum in the hermaphrodites: germ oblong: style filiform, length of the stamens: stigma bifid, spreading:—in the females: germ oblong: style filiform, length of the hermaphrodite: stigmas two, revolute: there is no pericarpium: calyx scarcely changed: the seeds in the hermaphrodites solitary, obovate-oblong: seed-down capillary:—in the females very like the others: the receptacle flattish, naked.

The species cultivated are: 1. *S. Virgaurea*, Common Golden-rod; 2. *S. Canadensis*, Canadian Golden-rod; 3. *S. altissima*, Tall Golden-rod; 4. *S. Mexicana*, Mexican Golden-rod; 5. *S. viminea*, Twiggy Golden-rod; 6. *S. bicolor*, Two-coloured Golden-rod; 7. *S. rigida*, Hard leaved Golden-rod; 8. *S. cæsia*, Maryland Golden-rod; 9. *S. flexicaulis*, Crooked-stalked Golden-rod; 10. *S. sempervirens*, Narrow-leaved Evergreen Golden-rod.

The first has a perennial root, of long simple fibres: the stem very various in height, from ten inches to three feet, commonly branching into a panicle, more or less flexuose, never entirely stiff and straight, leafy, angular, striated, a little downy; at the base round and often purple: the leaves elliptic-lanceolate, somewhat rugged, and stiffish; those next the root wider, on longer petioles, and more widely serrate; stem-leaves for the most part indistinctly crenate-serrate, sometimes almost quite entire, varying in size, often recurved; the upper ones gradually diminishing into lanceolate downy bractes: all somewhat hairy, or covered with short stiff down, paler underneath; footstalks winged: the flowers in terminating and axillary erect clusters or corymbs, forming a dense leafy pubescent panicle, which varies extremely as to luxuriance and number of flowers; in a barren soil and on mountains being shorter, more dense and less compound. They are of a golden colour. It is a native of Europe, Siberia, and Japan, flowering from July to September. It has sometimes the names of Wound-wort and Aaron's rod.

There are several varieties; as the purple-stalked broad-leaved, which has the stalks stiff, purplish brown, two feet high: the panicles axillary and terminating; each flower on a long slender footstalk, pale yellow, appearing at the beginning of August: the leaves lanceolate, almost four inches long, and a quarter of an inch broad, deeply serrate, pale green beneath.

The Common Golden-rod, which has the lower leaves ovate-lanceolate, two inches long and an inch broad, slightly serrate, on pretty long footstalks: the stems slender, a foot and half high; with small, narrow, entire, sessile leaves: the flowers in panicled bunches, clustered together, forming a thick erect spike, appearing in August and September. The narrow-leaved, which has the stalk round, smooth, a foot and half high: the leaves narrow-lanceolate, an inch and quarter long, and an eighth of an inch broad, almost entire, sessile: the flowers in small clustered branches from the axils, to which they sit very close; and the stalk is terminated by a roundish bunch. The Dwarf Golden-rod, which has the lower leaves indented: the stalk seldom more than a foot high, branching out almost from the bottom: the branches terminated by short, clustered, erect spikes: the leaves on the stem and branches very narrow, acute-pointed and entire. The Welch Golden-rod, which has the lower leaves narrow-lanceolate, an inch and half long, and a quarter of an inch broad, smooth, slightly serrate, a little hoary on the under side: the stalk about six inches high, with the same sort of leaves on it, only smaller: the flowers in roundish clustered terminating spikes, much larger than those of the common sort, and appearing five or six weeks earlier in the season.

The second species has the stalks round, smooth, and two feet high; the leaves narrow and rough, with three longitudinal veins, two inches and a half long, and a quarter of an inch broad in the middle, sessile, ending in acute points, and having sometimes a few slight serratures: the flowers in a roundish terminating panicle, the lower spikes of which are reflexed, but those at the top erect and joined very close. These appear in July. It is a native of Canada.

The third has the stems numerous, straight, rigid, from three to four feet and a half high, the thickness of a straw or more at the base, round, slightly streaked, hirsute, clothed from top to bottom at short distances with leaves, which are widish, oblong, pointed, rough, at their upper and lower parts thinly crenate, in the middle serrate, the serratures minutely crenate; those on the upper branches not serrate, but only minutely crenate; they are green on both sides, with a few oblique veins, and are hairy along the nerve and veins at the back, but without hairs every where else: the flowers very many, on the upper branches, in long rod-like spikes, somewhat reflexed, having four, five, or six florets in the ray: they appear in August and September. It is a native of New England, Virginia, and Carolina.

There are several varieties; as the Tallest Golden-rod—the Hairy Golden-rod—the Recurved Golden-rod—the Virginia Golden-rod.

The fourth species has oblique stalks, a foot and half high, smooth, with a brown bark: the leaves smooth, spear-shaped, entire, three inches long, and three quarters of an inch broad: the flowers come out on branching footstalks on the side of the stalks, are ranged on one side, and have a few small leaves under the flowers, which appear at the end of August. It is a native of North America.

The fifth has smooth erect stalks, a foot and half high: the leaves narrow, smooth, entire, dark green: the flowers in close compact panicles at the top of the stalk; spike short, clustered: the flowers large, bright yellow, appearing in September. It is a native of North America.

The sixth species has the lower leaves oval, six inches long, and three broad, ending in acute points, serrate, having several strong longitudinal veins on long footstalks which have leafy borders or wings: the stalks a foot and half high, branching out almost from the bottom, garnished with small, spear-shaped, entire leaves: the branches grow erect, are closely furnished with small leaves, and are terminated by short close spikes of white flowers; or rather, having a yellow disk and a white ray, in close racemes. It is a native of North America, flowering in September.

The seventh has the stalks two feet high: the lower leaves ovate, stiff, smooth and entire, four inches long, and two inches and a half broad, on footstalks four inches in length; those on the upper part of the stalk are spear-shaped, entire, and embrace the stalk half round: the flowers in loose, spreading, terminating panicles; spikes short, clustered, bright yellow, appearing in August. It is a native of New England.

The eighth species has the stalk slender, smooth, a foot and half high: the leaves narrow-spearshaped, two inches long, and half an inch broad, indented on their edges, and ending in acute points: the flowers in a loose terminating panicle, with the spikes closer and thicker towards the top. It is a native of Maryland, flowering in September.

The ninth has the lower leaves four inches long, and almost two broad; their footstalks two inches long, having a membrane or wing on each side: the stalk rises two feet high: they are slender, smooth, and of a light purple colour: the leaves ovate-lanceolate, indented, near two inches long, and three quarters of an inch broad, of a pale green on their under side: the flowers are produced in short bunches from the axils almost the whole length; the lower spikes are an inch long, but the upper ones are almost round: the flowers are of a brimstone colour, and appear late in August. It is a native of Canada.

The tenth species is remarkable for its red stalk, higher than a man, with very smooth and somewhat fleshy leaves, a little rugged at the edge, continuing the whole winter; it flowers very late, so that in the Northern countries the frost commonly prevents them from opening. It is a native of North America.

Culture.—These plants are all readily increased by slipping or parting the roots, and planting them out in the autumn or winter soon after their stems decay, or very early in the spring before they begin to shoot; but the former is the better season, in the places where they are to grow: they succeed in almost any soil or situation, and afterwards require only to be kept clean from weeds, and to have the decayed stems cut down when they begin to decay in the autumn. When they have increased considerably in the roots, they should always be slipped as above.

In planting out they require much room, as they spread considerably.

They afford considerable variety and ornament in larger borders and clumps.

2. SENECIO ELEGANS.

DOUBLE PURPLE GROUNDSEL.

This genus contains plants of the herbaceous, annual, and perennial kinds.

It belongs to the class and order *Syngenesia Polygamia Superflua*, and ranks in the natural order of *Compositæ Discoideæ.*

The characters are: that the calyx is common calycled, conical, truncate: scales awl-shaped, very many, parallel in a cylinder contracted above, contiguous, equal, fewer covering the base imbricatewise, the tops mortised: the corolla compound, higher than the calyx: corollets hermaphrodite, tubular, numerous in the disk: females ligulate in the ray, if any present: proper in the hermaphrodites funnel-form: border reflex, five-cleft: in the females, if any, oblong, obscurely three-toothed: the stamina in the hermaphrodites, filaments five, capillary, very small: anther cylindric, tubular: the pistillum in both: germ ovate: style filiform, length of the stamens; stigmas two, oblong, revolute: there is no pericarpium: calyx conical, converging: the seeds in the hermaphrodites solitary, ovate: pappus capillary, long; in the females very like the hermaphrodites: the receptacles naked, flat.

The species cultivated are: 1. *S. hieracifolius*, Hieracium-leaved Groundsel; 2. *S. Pseudo-China*, Chinese Grounsel; 3. *S. hastatus*, Spleenwort-leaved Groundsel; 4. *S. elegans*, Elegant Groundsel, or Purple Jacobæa.

The first is an annual plant, with a round, channelled, hairy stalk, rising three feet high: the flowers in a state of terminating umbel, composed of dirty-white florets. It is a native of North America, flowering in August.

The second species has a perennial root, composed of some thick fleshy tubers, sending out many fibres on every side; from which come out some large cut leaves shaped like those of the turnep, but smooth: the flower-stalk slender, a foot and half high, sustaining at the top a few yellow flowers. It is a native of the East Indies.

The third has a herbaceous perennial stalk, branching out at the bottom, and rising about two feet and a half high; having narrow leaves at bottom, seven or eight inches long: the upper leaves are smaller, and embracing; they are very clammy: the upper part of the stalk divides into several very long peduncles, each sustaining one yellow flower. It is a native of the Cape, flowering most part of th summer.

The fourth species is an annual plant, having many herbaceous branching stalks, near three feet high: the flowers are produced in bunches on the top of the stalks; are large, the ray of a beautiful purple colour, and the disk yellow. It is a native of the Cape, flowering from June or July till the beginning of autumnal frosts.

There are varieties with very double purple, and with equally double white flowers. The former is now chiefly cultivated.

There are many other species that may be cultivated for variety.

Culture.—The first and two last sorts are readily increased by planting cuttings of the branches in pots filled with fine mould in the summer season, shading them till they have taken root; and, as the winter approaches, removing them under the protection of the green-house, where they should remain till May, when they may be planted out in the borders or clumps.

They may likewise be raised from seed, which should be sown in the spring in pots, and placed in a gentle hot-bed.

The second sort should be more carefully attended, being raised from off-sets, which should be planted in pots in the spring season, and plunged in the hot-bed of the stove, where the plants should be constantly kept.

The first and two last sorts afford variety in borders, and among potted plants; and the second in stove collections.

3. SPARTIUM JUNCEUM.

SPANISH BROOM.

This genus contains plants of the deciduous and evergreen kinds.

It belongs to the class and order *Diadelphia Decandria* and ranks in the natural order of *Papilionaceæ* or *Leguminosæ*.

The characters are: that the calyx is a one-leafed perianth, cordate-tubular: at the upper edge very short, below towards the tip marked with five toothlets, coloured, small: the corolla papilionaceous, five-celled: standard obcordate, the whole reflexed, very large: wings ovate, oblong, shorter than the standard, annexed to the filaments: keel two-petalled, lanceolate, oblong, longer than the wings, (the carinal margin connected by hairs,) inserted into the filaments: the stamina have ten connate filaments, adhering to the germ, unequal, gradually longer; the uppermost very short; the lower nine-cleft: anthers oblongish: the pistillum is an oblong germ, hirsute: style awl-shaped, rising: stigma growing to the upper side of the top, oblong, villose: the pericarpium is a cylindric legume, long, obtuse, one-celled, two-valved: the seeds many, globe-kidney form.

The species cultivated are: 1. *S. scoparium*, Common Broom; 2. *S. junceum*, Spanish Broom; 3. *S. radiatum*, Starry Broom; 4. *S. monospermum*, White-flowered Single-seeded Broom; 5. *S. sphærocarpum*, Yellow-flowered Single-seeded Broom; 6. *S. Scorpius*, Scorpion Broom; 7. *S. angulatum*, Angular-branched Broom; 8. *S. spinosum*, Prickly Broom.

The first grows from three to six feet high or more, very much branched: the branches upright, rushy, evergreen, angular, flexible, leafy, smooth except the very young ones which are downy; the leaves ternate, small, ovate, acute, downy and edged with soft hairs bending inwards; the leaf-stalks are also slightly hairy, and flattened: the flowers axillary, solitary or two together, rarely three, nodding, on round smooth peduncles, furnished on each side with a very minute stipule, of a fine yellow colour. It is a native of Europe, flowering in May and June.

There are several varieties, some of which merit a place among flowering shrubs; as that with a purple calyx, and the flowers strongly tinged with orange, as well as that which is very hoary.

The second species has the branches smooth, flexible, eight or ten feet high; the lower ones have small tooth leaves, at the end of the shoots of the same year; the flowers are disposed in a loose spike, are large, yellow, have a strong agreeable odour, appear in July, and in cool seasons continue in succession till September. It is a native of all the Southern countries of Europe.

There is a variety with double flowers.

The third has low stems, with opposite four-cornered branches: the leaves opposite, sub-sessile: leaflets sessile, thin, subpubescent: the petioles extremely short, but permanent, three-cornered, gibbous, very blunt, thicker than the branchlet to be supported: the flowers terminating, in threes, sessile. In its natural state it is a low shrub; when cultivated it becomes much larger, though rarely exceeding two feet and a half in height, but the branches spread very much and form a large bush; they are angular and pliable, and always come out by pairs opposite: the leaves narrow and awl-shaped, placed round the stalk, spreading out like the points of a star: the flowers in small spikes at the end of the branches, bright yellow, but not more than half the size of the second sort, and without scent. It flowers in June, and is a native of Italy.

The fourth species has a thick stalk, covered with a rugged bark when old; it rises eight or nine feet high, sending out many slender rush-like branches of a silvery colour, almost taper, which terminate in very slender bending ends: these have a few narrow spear-shaped leaves on the lower branches: the flowers are produced in very short spikes or clusters on the side of the branches; are small and white. It is a native of Spain and Portugal, flowering in June and July.

The fifth has an upright stem: the branches numerous, slender, round, smooth, slightly striated, having a few tubercles scattered over them, below leaflets: the leaves on the younger branchlets small, lanceolate, deciduous, silky, with very short hairs pressed close: the flowers small, racemed, each on a very short pedicel. It is a native of the South of Europe and Barbary, flowering in June and July.

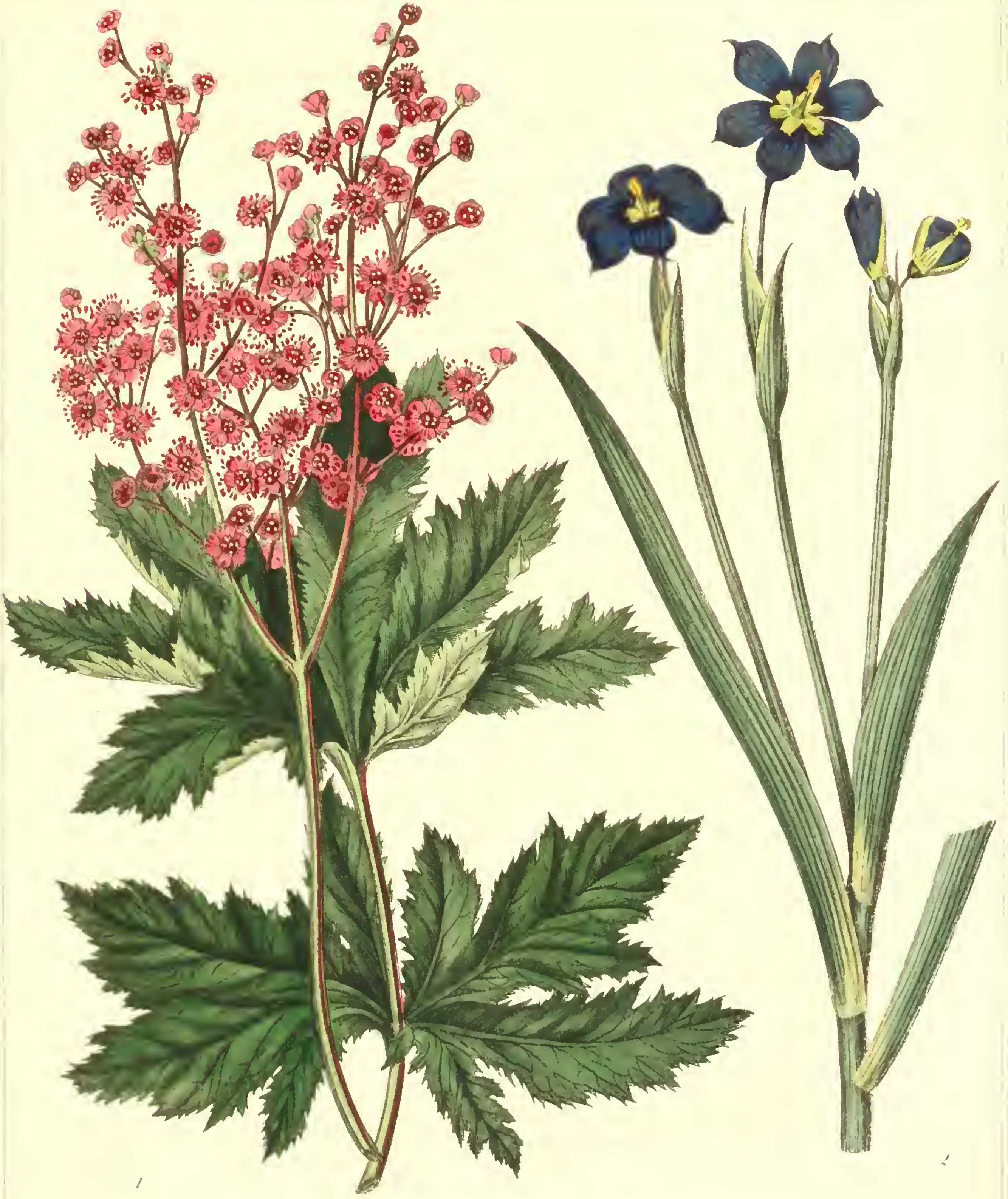
The sixth species is a shrub wholly covered with alternate spines, on which the flowers are placed; this renders it quite inaccessible: the branches and leaves are striated and ash-coloured, and the latter are a little villose: the flowers are yellow and rather large. It is a native of the South of Europe and Barbary, flowering in March and April.

The seventh has the stalks and branches slender, having a few trifoliate and single leaves towards the bottom: the branches have six angles or furrows: the flowers small, of a pale yellow colour, produced in loose spikes at the ends of the branches, rarely producing seeds in this climate. It is a native of the Levant.

The eighth species has stalks five or six feet high, sending out many flexible branches, armed with long spines: flowers terminating in clusters, each upon a long pedicel: corolla bright yellow, appearing in June. It is a native of Italy and Spain.

Culture.—The three first sorts are hardy, but the others more tender, especially in their young growth.

They are all capable of being raised from seeds, and the double-blossomed sorts by layers and cuttings. The seeds should be sown in the early spring, as about April; the hardy sorts in beds of common earth, either in drills or by bedding in to the depth of an inch: but in the tender sorts in pots or beds hooped over to protect them in frosty weather. In the following spring they should be removed into nursery-rows or larger pots, according to the kinds, shortening their tap-roots, and setting them out in rows two feet apart, at the distance of one in the rows, to remain two or three years, when they



Drawn by Syd Edwards London Published April 1.1806 by G.Kearsley Fleet Street Engraved by F. Sansom

1 Spiræa lobata
Lobe leaved Meadow Sweet

2 Sisyrinchium iridioides
Iris leaved Sisyrinchium

may be planted out in the shrubbery, or other places: the tender sorts in pots being removed to the green-house or garden for protection in winter, being managed as the hardy sorts of plants of this kind.

The layers should be laid down in the autumn or spring, and the cuttings may be planted out in the spring or summer, some in the open ground, and others in pots plunged in the hot-bed to promote their striking root. They may be managed afterwards as the other sorts.

This is the only certain mode of preserving the varieties.

The hardy sorts are very ornamental in the borders, clumps, and other parts, and the tender kinds in greenhouse collections, and among other more hardy potted plants.

PLATE LV.

1. SPIRÆA LOBATA.

LOBE-LEAVED MEADOW SWEET.

This genus contains plants of the shrubby and herbaceous kinds. It belongs to the class and order *Icosandria Pentagynia*, and ranks in the natural order of *Pomaceæ*.

The characters are: that the calyx is a one-leafed five-cleft perianth, flat at the base, with acute segments; permanent: the corolla has five petals, inserted into the calyx, oblong rounded: the stamina have more than twenty filaments, filiform, shorter than the corolla, inserted into the calyx: anthers roundish: the pistillum has five or more germs: styles as many, filiform, length of the stamens: stigmas headed: the pericarpium is an oblong capsule, acuminate, compressed, two-valved: the seeds few, acuminate, small, fastened to the internal suture.

The species cultivated are: 1. *S. salicifolia*, Willow-leaved Spiræa: 2. *S. tomentosa*, Scarlet Spiræa; 3. *S. hypericifolia*, Hypericum-leaved Spiræa; 4. *S. argentea*, Silvery-leaved Spiræa; 5. *S. chamædrifolia*, Germander-leaved Spiræa; 6. *S. crenata*, Hawthorn-leaved Spiræa; 7. *S. triloba*, Three-lobe-leaved Spiræa; 8. *S. opulifolia*, Currant-leaved Spiræa; 9. *S. sorbifolia*, Service-leaved Spiræa; 10. *S. Aruncus*, Goat's-beard Spiræa; 11. *S. filipendula*, Common Dropwort; 12. *S. ulmaria*, Common Meadow Sweet; 13. *S. trifoliata*, Three-leaved Spiræa.

The first has the stalks very taper, and rough towards the top, and covered with a reddish bark: the leaves about three inches long, and an inch broad in the middle, bluntly serrate, and of a bright green colour. In rich moist ground the stalks rise five or six feet high, but in moderate land from three to four; as their whole height is one year's growth from the root: they are terminated by spikes of pale red or flesh-coloured flowers. It flowers in June and July; and in moist seasons there are frequently young shoots from the root which flower in autumn. It is a native of Siberia.

There are several varieties: as the Flesh-coloured Willow-leaved, the Alpine Willow-leaved, the Panicled Willow-leaved, and the Broad Willow-leaved Spiræa.

The second species has the stalks slender, and branching out near the ground, with a purple bark covered with a gray mealy down: the leaves smaller than those of the first, downy and veined on their under side, but of a bright green above: the branches terminated by a thick raceme of flowers, branched towards the bottom into small spikes: the flowers very small, of a beautiful red colour, appearing in July, August and September. It is a native of Pensylvania.

The third rises with several slender shrubby stalks five or six feet high, covered with a dark brown bark, sending out small side branches the whole length: the leaves small, wedge-shaped, having many punctures on their surface: the flowers in small sessile umbels, each on a long slender pedicel, and white: they appear in May and June; and as the flowers are produced almost the whole length of he branches, it makes a good appearance during the time of flowering. It is a native of Italy and America.

The fourth species has striated erect branches, with short branchlets: the leaves alternale, petioled, silky-tomentose on both sides: the racemes longer than the branchlets: the flowers very small, with villose germs. It is a native of New Granada.

The fifth has abundant shoots, seldom two ells high, the thickness of the finger, wand-like, branched: the wood brittle: the bark of the shoots yellowish-brown, with prominent dots scattered over it: the branches alternate, commonly angular, with a testaceous bark somewhat striated, and in the younger branches covered with a tender ash-coloured epidermis, which falls off; the annual shoots are grooved and pubescent: the leaves alternate, softish, pubescent with prostrate hairs, quite entire at the base, but commonly gash-serrate from the middle to the end, where they are sharp: corymbs at the top of the stems frequent, many-flowered, terminating the annual alternate shoots: in gardens and in moist shady places these corymbs are more elongated; but in a ruder soil most of the peduncles are clustered at the top like an umbel: the flowers biggish, white, having a weak virose smell, and fugacious. It is a native of Siberia, &c.

It varies very much, with larger or smaller leaves, more or less cut, but more commonly quite entire and ovate-acute.

The sixth species has several stems, scarcely two ells high, very much branched from the bottom: the branches rod-like, round, with a testaceous bark cloven longitudinally: the leaves on the younger branches and annual shoots alternate, attended with smaller ones in little bundles, hoary or glaucous, three-nerved, hardish, varying in form and size; on the luxuriant shoots or branches sometimes ovate-acute, widish, serrulate from the tip beyond the middle; but commonly oblong, bluntish, crenulate, or serrulate towards the tip, or more commonly quite entire: the corymbs at the ends of the annual twigs, very abundant, disposed along the branches on one side in hemispherical clusters: the flowers smallish, white, odorous. It is a native of Spain, &c. flowering here in April and May.

The seventh has numerous stems, scarcely thicker than a swan's quill, very much branched, upright, with a gray bark more or less pale, and somewhat angular, with sharp streaks running down from the branches: the branches and branchlets alternate, those of the last year very smooth and yellow, leafy, and terminated by an umbel: the leaves alternate, on very short petioles, smooth, glaucous, wide-ovate, retuse, gash-trilobate: they vary even in the garden, with fewer or more frequent gashes, with the teeth or lobes obtuse or acute, in breadth, &c.: the umbels very frequent at the ends of the annual branches: peduncles often more than thirty, besides a few axillary ones scattered below the umbel: the flowers middle-sized, white. It is an elegant shrub, and a native of Siberia.

The eighth species rises with many shrubby branching stalks, eight or ten feet high in good gronnd, but generally five or six;

they are covered with a loose brown bark which falls off: the leaves about the size and shape of those of the common currant bush, ending in acute points, and serrate on their edges: the flowers are produced in roundish bunches at the end of the branches; are white with some spots of a pale red. It is a native of Canada and Virginia. It is commonly known in the nurseries by the name of Virginian Gelder Rose.

The ninth rises with shrubby stalks like the first, but sends out horizontal branches, which are slender, and covered with a brown bark: the leaves are of a thin texture, and a bright green colour on both sides, slightly and acutely serrate: the flowers in terminating panicles, small and white. It is a native of Siberia, flowering in August.

The tenth species has a perennial root: the stem annual, from three to four feet high: the leaves doubly pinnate; each having three or four pairs of oblong leaflets terminated by an odd one: they are two inches long, and almost an inch broad, serrate, and ending in acute points: the flowers disposed in long slender spikes, formed into loose terminating panicles; they are small, white, and of two sexes in the same spike. It is a native of Germany, flowering in June and July.

The eleventh has a perennial root, consisting of oval tubers or solid lumps, hanging from the main body by threads, which has given occasion to its common names, Filipendula and Dropwort. These tubers enable the herb to resist drought, and render it very difficult to be eradicated: the stem is erect, from a foot to a foot and half in height, angular, smooth, leafy, a little branched at top: the leaves alternate, interruptedly pinnate, serrate, and jagged, smooth, composed of several pairs of leaflets, all of each set uniform or nearly corresponding in size; the terminating leaflet three-lobed: a pair of roundish united indented stipules at the base of each leaf, embracing the stem: the flowers many in a cymose loose erect panicle, cream-coloured often tipped with red, or red on the outside. It is an elegant plant, which in gardens grows very luxuriant, and has often double flowers. It flowers early in July.

The twelfth has a perennial fibrous root: the stems erect, three or four feet high, angular and furrowed, tinged with red, leafy, branched in the upper part: the leaves interruptedly pinnate: leaflets very unequal in size, sharply serrate, clothed beneath with white down, the end one remarkably large and three-lobed: a pair of rounded serrate stipules are joined to the common leaf-stalk, and clasp the stem: the flowers white, in a large compound cyme, the side-branches of which rise much above the central one: it perfumes the air with the sweet hawthorn-like scent of its plentiful blossoms from June to August.

There are varieties with double flowers, and with variegated leaves.

The thirteenth has a perennial root: the stalks annual, about a foot high, sending out branches from the side the whole length: the leaves for the most part trifoliate, but sometimes single or in pairs; they are about an inch and half long, and half an inch broad, ending in acute points, sharply serrate, of a bright green above, and pale beneath: the flowers in loose terminating panicles, on slender peduncles. It is a native of North America, flowering in June and July.

Culture.—In all the shrubby sorts, this may be performed by suckers, layers, and cuttings.

The suckers should be taken off in the autumn and planted out where they are to remain, or in nursery-rows, to attain a fuller growth.

The first sort requires to be cleared of these suckers every two years at furthest.

The layers should be put down in the autumn or in the spring, and may be taken off and planted as above, in the autumn or spring following: all the sorts may be raised in this way; but it is most proper for such sorts as do not send off suckers.

The cuttings may be made from the shoots of the preceding summer, and be planted out in a shady border in the early autumn: when they have become well rooted they may be removed and managed as the others: they succeed in this way with more difficulty than in either of the others.

All the herbaceous sorts may be increased by seeds, or parting the roots.

The seed may be sown in the autumn or early in the spring; but the first is the better mode, on a bed of fine mould: when the plants appear they should be kept clear from weeds till the autumn, when they may be planted out where they are to remain, or in the nursery for a year or two.

The roots should be parted in the autumn or spring, when the stems decay, before they shoot out new ones, being planted immediately where they are to grow.

The double-flowered and striped varieties can only be preserved in this way.

They all afford variety and ornament in the shrubbery and other parts.

2. SISYRINCHIUM IRIDIOIDES.

IRIS-LEAVED SISYRINCHIUM.

THIS genus contains plants of the flowery perennial kind.

It belongs to the class and order *Monadelphia Triandria*, and ranks in the natural order of *Ensatæ*.

The characters are: that the calyx is a common ancipital spathe, two-valved: valves compressed, acuminate: proper several, lanceolate, concave, obtuse, one-flowered: the corolla one-petalled, superior, six-parted: segments obovate with a point, from erect spreading: three outer alternate, a little wider: the stamina have three filaments, united into a subtriquetrous tube shorter than the corolla, distinct at the top: anthers bifid below, fastened by the back: the pistillum is an obovate inferior germ: style three-sided, length of the tube: stigmas three, thickish, awl-shaped at the top, erect: the pericarpium is an obovate capsule, rounded, three-sided, three-celled, three-valved; with the partitions contrary: the seeds several, globular.

The species are: 1. *S. Bermudiana*, Iris-leaved Sisyrinchium; 2. *S. anceps*, Narrow-leaved Sisyrinchium.

The first has a fibrous root, from which arise some stiff sword-shaped leaves, four or five inches long, and half an inch broad, of a dark green colour: from among these comes out the stalk (scape) six inches high; it is compressed, and has two borders or wings running the whole length, and three or four spear-shaped leaves embracing it; these grow erect, and are hollowed like the keel of a boat: the stalk is terminated by a cluster of six or seven flowers, on short peduncles, and enclosed in a two-leaved, keel-shaped sheath, before they open; they are of a deep blue colour with yellow bottoms, which, when fully expanded, are an inch over. It is a native of Bermuda.

The second species has a perennial fibrous root, from which arise many very narrow spear-shaped leaves, about three inches long, and scarcely an eighth of an inch broad, of a light-green colour: the stalks about three inches high, very slender, compressed and bordered, having short, narrow, sword-shaped, embracing leaves: they are terminated by two small pale-bue flowers, enclosed in a two-leaved sheath, upon longer peduncles than those of the first sort, flowering about the same time. It is a native of Virginia.

It is observed, that the leaves, stalks, and flowers of the first sort are three times as large as in the second, and the sheath encloses six or seven flowers; whereas the second has rarely more than two, and these expand only for a short time in the morning, while in the former they continue open the whole day.

Culture.—These plants may be increased by seeds and parting the roots: in the former method the seeds of the first sort should be sown in the autumn as soon as they become ripe, on a border which has an eastern aspect, in drills at three or four inches distance, covering them about half an inch with fine mould: they should afterwards be kept clean from weeds with care. They succeed best in a loamy soil in a shady situation, and where the ground has not been manured.

In the latter sort the seed should be sown in pots, in order that they may be protected in the green-house.

The first affords ornament in the large open borders and clumps, and the latter among other green-house plants.

PLATE LVI.

1. TRADESCANTIA VIRGINICA.

VIRGINIAN SPIDERWORT.

This genus furnishes a plant of the hardy herbaceous perennial kind.

It belongs to the class and order *Hexandria Monogynia*, and ranks in the natural order of *Ensatæ*.

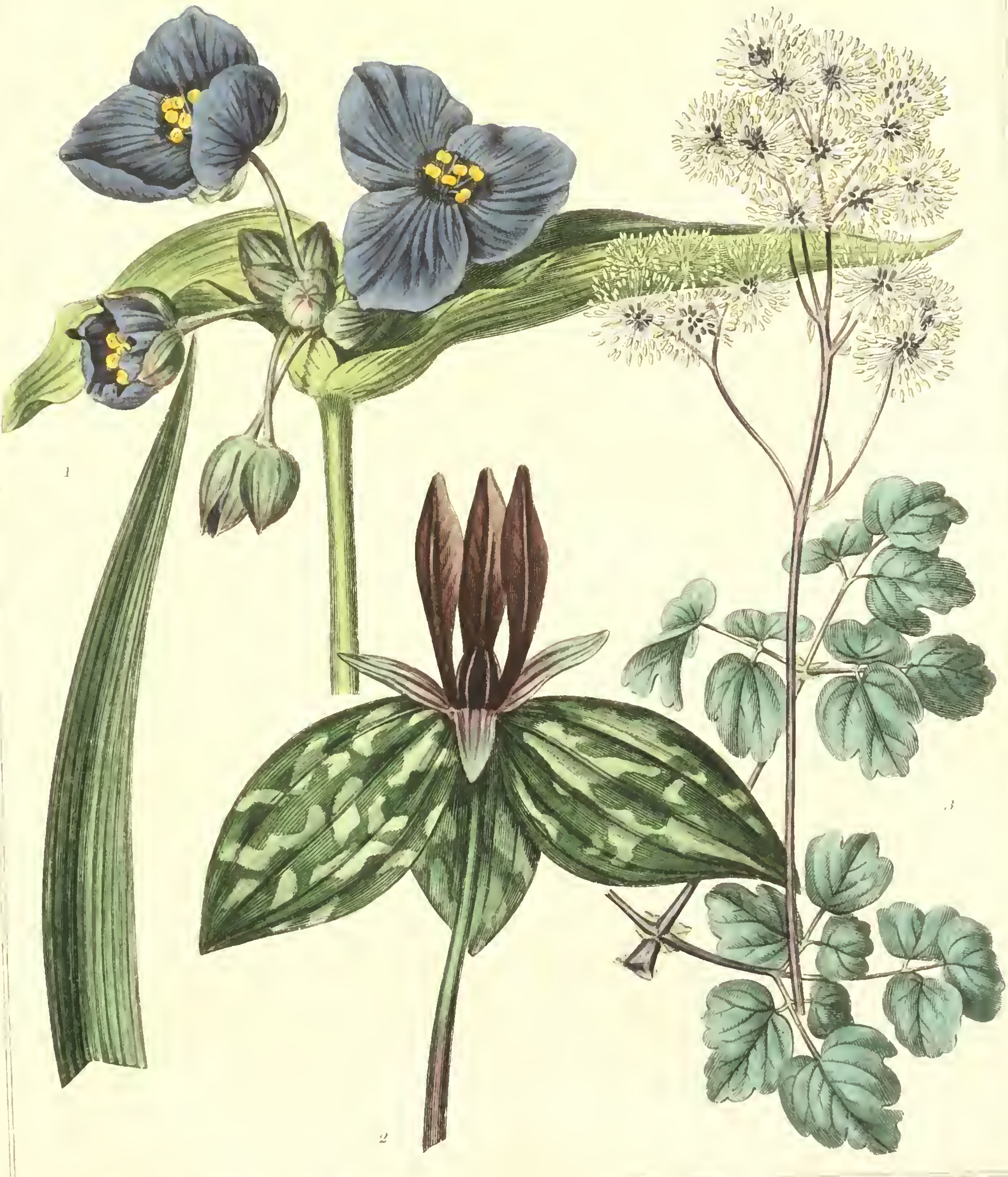
The characters are: that the calyx is a three-leaved perianth, leaflets ovate, concave, spreading, permanent: the corolla has three orbicular petals, flat, spreading very much, large, equal: the stamina have six filiform filaments, length of the calyx, erect, villose, with jointed hairs: anthers kidney-form: the pistillum is an ovate germ, obtusely three-cornered: style filiform, length of the stamens: stigma three-cornered, tubulous: the pericarpium is an ovate capsule, covered by the calyx, three-celled, three-valved: the seeds few, angular.

The species is *T. Virginica*, Common Virginian Spiderwort, or Flower of a Day.

There are other species that may be cultivated.

It has roots composed of many fleshy fibres: the stalks smooth, rising a foot and half high: the leaves long, smooth, keeled, embraching: the flowers in clusters, composed of three large spreading purple petals: they appear early in June; and though each flower continues but one day, yet such is the profusion, that there is a succession of them through the greater part of the summer. It is a native of Virginia and Maryland, flowering in June.

There are varieties with deep blue flowers, with white flowers, with red flowers, and with purple flowers.



Painted by Syd Edwards

London Published June 1 1805, by G. Kearsley Fleet Street

Engrav.

1 Tradescantia virginica
Virginian Spider wort

2 Trillium sessile.
Sessile Trillium

3 Thalictrum aquilegifolium
Feathered Columbine

Culture.—They are readily increased by parting the roots, and planting them out in the autumn, or early in the spring, in a bed or border of common earth.

And also by seeds sown at the same seasons in similar situations, the plants being pricked out into other beds in the summer, and removed in the autumn to the places where they are to grow.

They afford ornament in the common borders among other flower plants.

2. TRILLIUM SESSILE

SESSILE TRILLIUM.

This genus furnishes plants of the low, tuberous-rooted, flowery, perennial kind.

It belongs to the class and order *Hexandria Trigynia*, and ranks in the natural order of *Sarmentaceæ*.

The characters are: that the calyx is a three-leaved perianth, spreading: leaflets ovate; permanent: the corolla has three petals, subovate, a little bigger than the calyx: the stamina have six awl-shaped filaments, shorter than the calyx, erect: anthers terminating, oblong, length of the filaments: the pistillum is a roundish germ: styles filiform, recurved: stigmas simple: the pericarpium is a roundish berry, three celled the seeds many, roundish.

The species are: 1. *T. cernuum*, Drooping Trillium; 2. *T. erectum*, Upright Trillium; 3. *T. sessile*, Sessile flowered Trillium.

The first has a perennial tuberous root: the stem is erect, a foot high, simple, round, slightly striated, smooth: the leaves three together, terminating, on short footstalks, spreading, rhomboidal, pointed, entire, veiny, smooth, paler beneath: the flowers solitary, among the leaves, without bractes the flower-stalk round, a little waved, smooth. It is a native of North America.

The second species has a taller stalk: the three leaves are placed at a distance from the flower, which stands upon a long footstalk, and is erect: the petals are purple, larger, and end with sharper points. It is a native of Virginia, Canada, &c.

The third has a purple stalk: the three leaves grow at the top like the first; but they are much longer, and end in acute points: the petals are long, narrow, and stand erect; are of a dark brownish red: the calyx leaves are streaked with red: the leaves mottled. It grows in Carolina and Virginia.

Culture.—These plants may be increased by seeds, which should be sown on a shady border as soon as they become ripe in the autumn: when they appear in the spring, the plants should be kept clean from weeds, and in the autumn following be planted out where they are to remain and flower.

They succeed best in a light soil, where the situation is rather shaded. They afford variety in such places.

3. THALICTRUM AQUILEGIFOLIUM.

FEATHERED COLUMBINE.

This genus contains plants of the hardy, herbaceous, fibrous-rooted, perennial kinds.

It belongs to the class and order *Polyandria Polygynia*, and ranks in the natural order of *Multisiliquæ*.

The characters are: that there is no calyx, unless the corolla be taken for it: the corolla has four petals, roundish, obtuse, concave, caducous: the stamina have very many filaments, wider at top, compressed, longer than the corolla: anthers oblong, erect: the pistillum, styles very many, very short: germs many, commonly pedicelled, roundish: styles none: stigmas thickish: there is no pericarpium: the seeds many, grooved, ovate, tailless.

The species cultivated are: 1. *T. tuberosum*, Tuberous-rooted Meadow Rue; 2. *T. Cornuti*, Canadian Meadow Rue; 3. *T. fœtidum*, Fetid Meadow Rue; 4. *T. angustifolium*, Narrow-leaved Meadow Rue; 5. *T. lucidum*, Shining-leaved Meadow Rue; 6. *T. aquilegifolium*, Columbine-leaved Meadow Rue, or Feathered Columbine.

The first has knobbed roots: the leaves small, obtuse, indented in three parts at their points, of a grayish colour and smooth: the stalks rise a foot and half high, and are naked almost to the top, where they divide into two or three small ones, under each of which is placed one leaf; every division is terminated by a small bunch of pretty large flowers, disposed almost in form of an umbel, each composed of five white petals. It is a native of Spain, flowering in June.

The second species attains the height of three feet: the stems suffruticose, dark purple, branched: leaves resembling those of Columbine, but glaucous: the flowers in many pale-purple heads, five-petalled and white. It is a native of North America, flowering from May to July.

There is a variety, which is smaller, with pale purple filaments.

The third has the stem about six or seven inches high: the leaves downy, composed of a great number of small leaflets, which are bluntly indented, and have a fetid scent: the flowers in loose panicles, small, and of an herbaceous white colour: the leaves are somewhat hairy on both sides, pulpy and soft: the petals themselves are somewhat hairy, in the young plant reddish, but in the adult whitish, almost a foot high, and not very leafy. It is a native of the south of France, Switzerland, &c. flowering from May to July.

The fourth species has the stems from two to three feet high: the flowers small, collected in terminating panicles, and of an herbaceous white colour. It is a native of Germany and Switzerland, flowering in June and July.

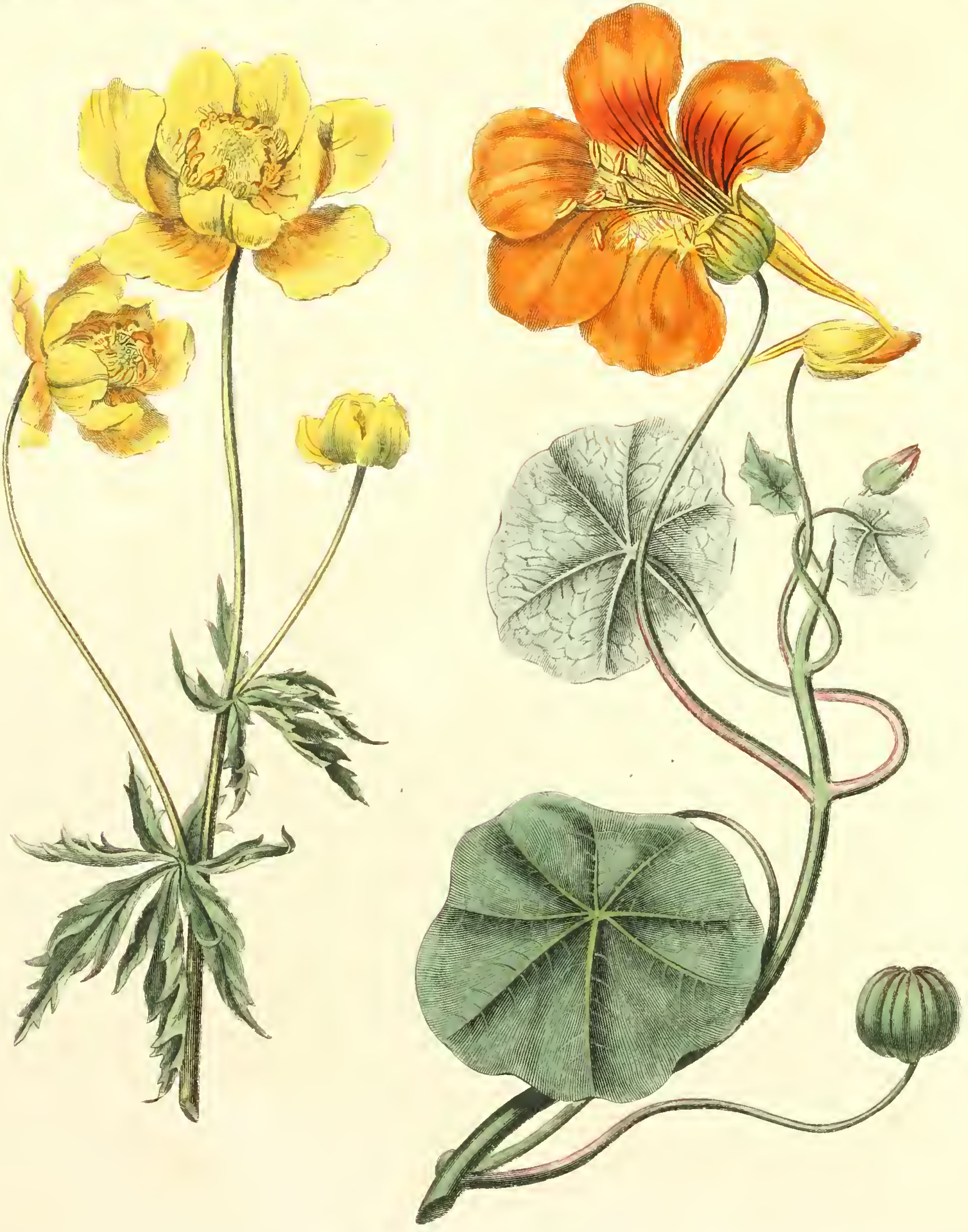
The fifth has the stems upright, channelled, five or six feet high, having at each joint pinnate leaves, composed of many linear fleshy leaflets, which are for the most part entire, and end in acute points: the flowers are of a yellowish-white colour; they appear in July, and are succeeded by small angular capsules, with one small oblong seed in each, which ripens in August. It is a native of France, about Paris, and of Spain.

The sixth species has a thick fibrous root; the stems taper, rising three feet high: the leaves like those of Columbine: the flowers in large terminating panicles. It is a native of Scania, Switzerland, &c.

There are varieties with a green stalk and white stamens, and with a purple stalk and stamens. There are other sorts that may be cultivated for variety.

Culture.—All the sorts are readily increased by parting the roots, and planting them out in the autumn when the stems decay, or in the spring before the new ones are sent forth; the strongest where they are to remain, and the weaker ones in nursery-rows for further growth: they may also be raised from seeds, which should be sown in a bed or border in the spring; when the plants rise, they should be kept clean, and be planted out where they are to remain, in the following autumn. They afford variety in the borders, and other parts of ornamented grounds.

Pl 57



Painted by Syd Edwards

London Publiſhed Oct 1 1805, by C Kearsley Fleet Street

Engraved by F Sanſom

1 Trollius Americanus
American Globe flower

2 Tropæolum majus
Greater Nasturtium

PLATE LVII.

TROPÆOLUM MAJUS.

GREATER NASTURTIUM.

This genus furnishes plants of the herbaceous, annual, and perennial, trailing and climbing kinds.

It belongs to the class and order *Octandria Monogynia*, and ranks in the natural order of *Trihilatæ*.

The characters are: that the calyx is a one-leafed perianth, five-cleft, from upright spreading, acute, coloured, deciduous; the two lower segments narrower; horned at the back with an awl-shaped, straight, longer nectary: the corolla has five petals, roundish, inserted into the divisions of the calyx; two upper sessile; the others lower, with oblong ciliate claws: the stamina have eight awl-shaped filaments, short, declining, unequal: anthers erect, oblong, rising: the pistillum is a roundish germ, three-lobed, striated: style simple, erect, length of the stamens: stigma trifid, acute: the pericarpium berries (or nuts) somewhat solid, three, on one side convex, grooved and striated; on the other angular: the seeds three, gibbous on one side, angular on the other, roundish, grooved and striated.

The species cultivated are: 1. *T. minus*, Small Indian Cress, or Nasturtium; 2. *T. majus*, Great Indian Cress, or Nasturtium.

The first has an herbaceous, trailing stem: the leaves almost circular, smooth, grayish: the flowers axillary, on very long peduncles; composed of five acute-pointed petals, the two upper large and rounded, the three under narrow, jointed together at bottom, and lengthened out into a tail two inches long.

There are varieties with deep orange-coloured flowers inclining to red, with pale yellow flowers, and with double flowers.

The second species is larger in all its parts: the borders of the leaves are indented almost into lobes; and the petals are rounded at the top. The fruit consists of three berries, becoming juiceless when ripe, fungous, deeply grooved and wrinkled, gibbous on one side, angular on the other, narrowing upwards. It begins to flower in July, and continues till the approach of winter.

There are varieties with pale yellow flowers, orange-coloured flowers, and the double-flowered.

They are both natives of Peru, and commonly esteemed to be annual plants, though they may be continued through the winter, if they are kept in pots, and sheltered in a green-house or glass case, in like manner as the variety with double flowers.

The stalks will climb six or eight feet high, when they are trained up, and thus the flowers make a good appearance; but when they trail upon the ground, they will spread over the neighbouring plants and become unsightly: the flowers are frequently eaten in salads; they have a warm taste like the garden cress, and hence the plant has its common name of Nasturtium; they are likewise used for garnishing dishes: the seeds are pickled, and by some are preferred to most pickles for sauce, under the false name of capers.

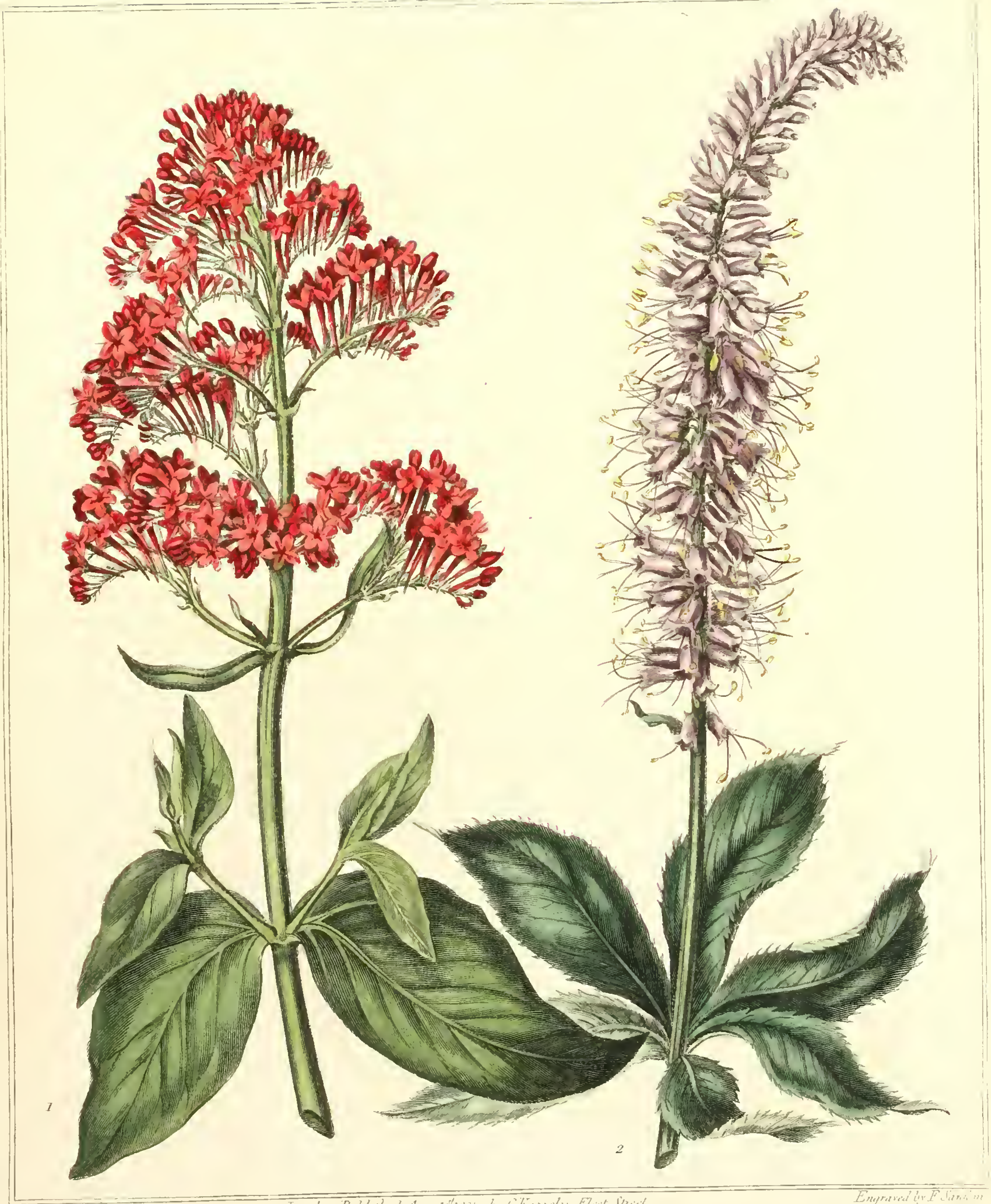
Culture.—These plants in all the single varieties may be increased by seeds, which should be sown in the spring in patches where they are to flower in the borders, or in drills in the garden.

They afterwards only require to be kept free from weeds, and to be well supported by sticks.

The double variety must be increased by planting cuttings of the branches in pots of light mould in the early part of summer, placing them in the shade, and giving frequent light waterings: those planted early may be rendered more forward by being plunged in a moderate hot-bed.

It requires to be protected in the green-house in the winter, being well supported with sticks.

They all afford variety in the borders, clumps, &c. in the summer, and the double sorts among potted plants.



Painted by Syd. Edwards
London Published Aug 1st 1805 by G.Kearsley Fleet Street
Engraved by F Sansom

1 Valeriana rubra
Red Valerian

2 Veronica Siburica
Siberian Speedwell

PLATE LVIII.

1. VALERIANA RUBRA.

RED VALERIAN.

This genus contains plants of the hardy herbaceous perennial kind.

It belongs to the class and order *Triandria Monogynia*, and ranks in the natural order of *Aggregatæ*.

The characters are: that there is scarcely any calyx; a superior margin: the corolla a nectariferous tube on the lower side, gibbous: border five-cleft: segments obtuse: the stamina three, or fewer (in one species four): filaments awl-shaped, erect, length of the corolla: anthers roundish: the pistillum is an inferior germ: style filiform, length of the stamens: stigma thickish: the pericarpium a crust not opening, deciduous, crowned: the seeds solitary, oblong.

The species cultivated are: 1. *V. rubra*, Common or Broad-leaved Red Valerian; 2. *V. angustifolia*, Narrow-leaved Red Valerian; 3. *V. Calcitrapa*, Cut-leaved Valerian; 4. *V. Phu*, Garden Valerian; 5. *V. tripteris*, Three-leaved Valerian; 6. *V. montana*, Mountain Valerian; 7. *V. Celtica*, Celtic Valerian; 8. *V. tuberosa*, Tuberous-rooted Valerian; 9. *V. Pyrenaica*, Pyrenean Valerian; 10. *V. olitoria*, Common Corn-Salad, or Lamb's Lettuce.

The first has woody perennial roots, as thick as a man's finger, spreading very wide: the stems about three feet high, round, smooth, grayish, hollow: at each joint are two (sometimes three) smooth, spear-shaped leaves, near three inches long, and an inch broad; the upper part sends out branches by pairs, which, with the principal stem, are terminated by red flowers growing in corymbs. It is a native of France, Switzerland, Italy, &c. flowering all the summer and autumn.

The second species has the root not so large as in the first sort: the stems two feet high or more, branching on each side from the root to within six inches of the top: the leaves three or four inches long, but as narrow as those of flax: the upper part of the stem naked, and terminated by a compact corymb of bright red flowers, smaller than those of the former. It is a native of the mountains of France, Switzerland, &c.

The third is an annual plant: the lower leaves, which spread on the ground, are cut into many obtuse segments: the stalks, when the plants are in good ground, rise near a foot and half high, but upon dry stony soils not half so high, and when they grow out of the joints of old walls, not more than three inches in height; are hollow, smooth, and round, sending out branches by pairs from the upper joints: the segments of the pinnatifid leaves are very narrow: stem and branches terminated by tufts (corymbs) of flowers shaped like those of the fourth sort, but smaller and tinged with flesh-colour at the top. It is a native of the South of France, &c. flowering early in the spring.

It varies with the lower leaves pinnatifid.

The fourth species has thick roots, fleshy, jointed, spreading near the surface in a very irregular manner, crossing each other, and matting together by their small fibres: many of the root-leaves entire, others divided into three, five, or seven, obtuse lobes of a pale green, and quite smooth: the stems three or four feet high, hollow, sending out lateral branches by pairs: the stem-leaves opposite at each joint, composed of four or five pairs of long narrow leaflets, terminated by an odd one: the stem and branches terminated by corymbs of small white flowers. It is a native of Silesia, Barbary, &c. flowering from May to July, with the odour of the flowers very pleasant.

The fifth has a perennial root, long, unequal, brownish, strong-smelling: the root-leaves oblong-cordate, bluntish, smooth, obtusely serrate-toothed, on long petioles; the two first of these that come out are more inclined to roundish, and are only slightly crenate: the stem upright, undivided, about a foot high: the stem-leaves two or three pairs, smooth, ternate, on short petioles: leaflets confluent at the base, lanceolate, acute, unequally subserrate, the middle one larger than the others: they vary much, being gash-serrate, crenate, or even quite entire; the uppermost are sometimes lanceolate-linear and quite entire, sometimes pinnate with five leaflets: the flowers numerous, white, in loose corymbs. It is a native of the Alps of Switzerland, flowering here from March to May.

The sixth species agrees in stature and habit with the preceding; but this is more tufted, and has the root commonly creeping horizontally, more divided, and not smelling so strongly: all the leaves are acute, unequally serrate or toothed and smooth; the root-leaves are on long petioles, and more or less attenuated at the base towards the petiole: the stem-leaves vary in number, are on short petioles, and rather oblong: the stem is upright, simple, a foot or eighteen inches high: the flowers in a corymb, whitish or purplish. It is a native of Switzerland, Austria, &c. flowering here in June and July.

The seventh species has a perennial root, black, oblique, with long fibres, smelling very strong, aromatic, caulescent at top and scaly with the remains of the deciduous leaves; it is often in tufts with an upright stem, four or five inches high: all the leaves are quite entire and obtuse; the root-leaves subovate, and attenuated into the petiole at the base; stem-leaves two, opposite, linear and sessile, about the middle of the stem, but there are sometimes none: the stem slender, simple, terminated by a few small whitish flowers in a corymb. It is found in Switzerland, flowering in June.

The eighth species has roots perennial, and tuberous, by which it is easily distinguished. It is a native of the south of Europe, flowering in May and June.

There is a variety with the roots in the form of an olive.

The ninth species has a perennial fibrous root, from which come out many heart-shaped leaves, on petioles more than a foot in length; they are four inches over each way, bluntly serrate, smooth, and of a bright green on their upper surface, but pale and a little hairy underneath: the stalks rise three feet high, are hollow, channelled, and send out opposite branches towards the top: the stem-leaves opposite, shaped like the lower ones, but a little pointed; and frequently at the top there are ternate leaves standing upon short foot-stalks: the stem and branches are terminated by umbels of pale flesh-coloured flowers, having very short spurs. It flowers in June, and is a native of the Pyrenees.

The tenth has a small annual, fibrous, pale brown root: the stem dichotomous, somewhat spreading, from four inches to a span, and even a foot or more in height (in gardens); round, grooved, or angular, tender, often tinged with purple on one side: the leaves glaucous, pale, obovate-lanceolate or rather linear tongue-shaped: the bottom leaves many, usually entire, but sometimes very slightly toothed near the base, somewhat spreading, rather succulent, smooth, veiny, and a little wrinkled, from three-quarters of an inch to two inches in length: the stem-leaves opposite at each subdivision, sessile, remote, usually more toothed than the bottom leaves: both these and the stem are ciliate or fringed at the edge with fine white hairs: the flowers are very small, of a pale blueish colour, and collected into a close little corymb, protected by an involucre. It is a native of Europe and Barbary, flowering in April and May. It is used in salads in the early spring and winter, under the name of Corn Salad, or Lamb's Lettuce.

There is a variety, which is smaller, with jagged leaves.

Culture.—The two first sorts may be increased by parting the roots, and planting them out in the autumn or spring season where they are to grow.

They may also be raised from seed sown at the same time, in the situations where the plants are to grow.

The third may likewise be raised from seeds, by sowing them as above, without any trouble.

The fourth may be increased by parting the roots. and planting them out in the autumn on fresh ground where they are to grow.

The fifth may be raised in the same way, being allowed good room as it spreads.

The three following sorts are more difficult to preserve, requiring a stony soil and cold exposure.

The ninth sort may be raised from seeds sown in a moist shady border soon after they are ripe, managing the plants as in the first sort.

The last sort, when cultivated for the purpose of salads, should be sown in the latter end of summer, or beginning of autumn, in an open place where it is to grow; the plants being afterwards thinned out by hoeing, and kept clean from weeds; when they will be fit for use very early in the spring while quite young.

All the sorts except the last may be introduced in the borders, for the purpose of variety, and most of them continue many years.

The last is used as an early spring salad herb.

2. VERONICA SIBIRICA.

SIBERIAN SPEEDWELL.

This genus comprises plants of the herbaceous perennial and shrubby kinds.

It belongs to the class and order *Diandria Monogynia*, and ranks in the natural order of *Personatæ*.

The characters are: that the calyx is a four-parted perianth, permanent: segments lanceolate, acute: the corolla one-petalled, wheel-shaped: tube length almost of the calyx: border four-parted, flat, with ovate segments; the lowest narrower, the segment opposite to this wider: the stamina have two filaments, narrower at bottom, ascending: anthers oblong: the pistillum is a compressed germ: style filiform, length of the stamens, declined: stigma simple: the pericarpium is an obcordate capsule, compressed at the top, two-celled, four-valved: the seeds numerous, roundish.

The species cultivated are: 1. *V. Sibirica*, Siberian Speedwell; 2. *V. Virginica*, Virginian Speedwell; 3. *V. spuria*, Bastard Speedwell; 4. *V. maritima*, Sea Speedwell; 5. *V. longifolia*, Long-leaved Speedwell; 6. *V. hybrida*, Welsh Speedwell; 7. *V. incisa*, Cut-leaved Speedwell; 8. *V. decussata*, Cross-leaved Speedwell.

The first has a perennial root: the stem four feet high, rough-haired: the leaves six or seven in whorls, twice as wide as those of the second sort: peduncles terminating solitary; the lateral ones with two opposite oval leaflets: the calyxes five-cleft: the corollets blue, with an oblong tube, and small acute border: the stamens and pistil twice as long as the corolla. It is a native of Siberia, flowering in July and August.

The second species has the stems erect, four or five feet high, having four or five lanceolate leaves in whorls at each joint, serrate, and ending in acute points: the stems are terminated by long slender spikes of white flowers, which appear late in July. It is a native of Virginia and Japan.

It varies with blush-coloured flowers.

The third has a perennial root, sending out many offsets: the lower leaves two inches long, and half an inch broad, pale green and hairy: the stems a foot high, with very narrow lanceolate leaves, placed opposite, and having a few slight serratures on their edges: the stems terminated by long spikes of blue flowers, which appear in June and July. It is a native of Siberia and Germany.

There is a variety of this also with a flesh-coloured flower.

The fourth species has the stalks not so long as those of the preceding: the leaves by fours and threes round the stalk, on longer footstalks; they are broader at the base, run out into long acute points, are unequally serrate, and of a bright green colour: the flowers are of a bright blue, and appear in July. It is a native of the sea-coasts of Europe.

There are varieties with leaves opposite, in threes or in fours, with blue, blueish, flesh-coloured, and with white flowers.

The fifth has the lower leaves two inches long, and an inch broad in the middle, drawing to a point at each end, serrate, and of a lucid green colour: the stems a foot and a half high, with leaves of the same shape but smaller, and placed opposite; they are terminated by long spikes of blue flowers, which appear in June. It is a native of Germany, Austria, and Russia.

The sixth species has the stems very white and woolly, about a foot high: the leaves oblong, hoary, two inches and a half long, three quarters of an inch broad, sessile: the flowers deep blue in terminating spikes, and from the upper axils: they appear in June and July. It is a native of Russia, Ukrain Tartary, &c.

There is a variety with white flowers.

The seventh has the spikes aggregate, the flowers large, the leaves an inch long, lanceolate wedge-shaped at the base, with lanceolate segments. It is a native of Siberia, flowering in July and August.

The eighth species is a bushy shrub about two feet high: stem upright, round, very much branched: the branchlets alternate, spreading, round or indistinctly quadrangular, closely leafed on every side, having a pubescent line on each side running down from the oppositions of the leaves, which spread very much, are scarce an inch long, acute, coriaceous, smooth and even, one-nerved, paler underneath, evergreen, border cartilaginous, on very short concave smooth petioles, gibbous at the base on the outside: the racemes single, short, few-flowered, towards the end of the branches, not terminating, but just below the top: the pedicels alternate, short, quadrangular, one-flowered. The regular growth of the leaves decussated or crosswise, distinguishes this species immediately.

Culture.—These plants may be raised by seed and parting the roots.

In the annual sorts the seeds should be sown in the autumn or very early spring, in the borders or places where the plants are to grow, being lightly covered in: if the seeds be permitted to scatter, good plants may be raised: sometimes they are sown on beds to be afterwards removed.

In the perennial sorts the roots may be parted in the autumn or early spring, and planted out where they are to grow, or in nursery-rows to be afterwards removed.

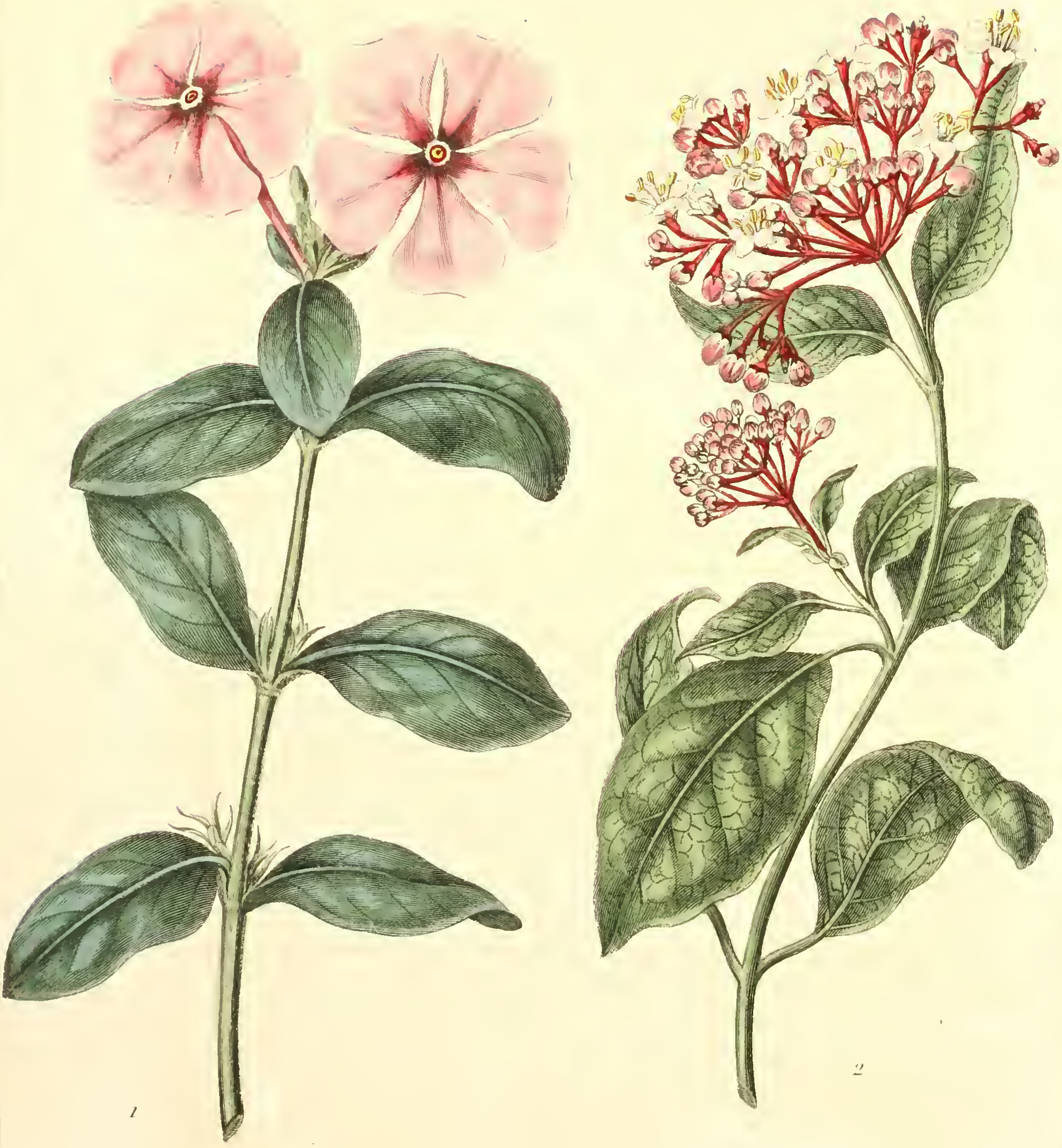
They should not be parted too small, or oftener than every two years: the large-growing sorts are proper for the borders, clumps, &c. and the trailing kinds for banks and shady slopes, or other similar places: they are hardy, and require only to be kept clean afterwards.

The eighth sort is readily increased by cuttings in the spring and summer, being managed as a hardy green-house plant in the same way as the Myrtle.

In very mild winters it sometimes stands secure in the open air.

The annual and perennial sorts afford variety in the borders, clumps, and other parts of pleasure-grounds, and the last among plants of the hardy potted green-house kinds.

Pl. 39



Painted by Syd Edwards   London Publiſhed Dec^r 1^st 1805, by G. Kearsley Fleet Street   Engraved by F Sanſom

Vinca Rosea
1 Madagascar Periwinkle

Viburnum Tinus
2 Laurustinus

PLATE LIX.

1. VINCA ROSEA.

MADAGASCAR PERIWINKLE.

This genus comprehends plants of the shrubby, evergreen, upright, and trailing kinds.

It belongs to the class and order *Pentandria Monogynia*, and ranks in the natural order of *Contortæ*.

The characters are: that the calyx is a five-parted perianth, erect, acute, permanent: the corolla one-petalled, salver-shaped: tube longer than the calyx, cylindric below, wider above, marked with five lines, the mouth a pentagon: border horizontal, five-parted: segments fastened to the apex of the tube, wider outwards and obliquely truncate: the stamina have five filaments, very short, inflexed and retroflexed: anthers membranaceous, obtuse, erect, curved in, fariniferous on both sides at the edge: the pistillum has two roundish germs, with two roundish little bodies lying by their sides: style one common to both, cylindric, length of the stamens: stigma capitate, concave, placed on a flat ring: the pericarpium has two follicles, round, long, acuminate, erect, one-valved, opening longitudinally: the seeds numerous, oblong, cylindric, grooved, naked.

The species cultivated are: 1. *V. minor*, Small Periwinkle; 2. *V. major*, Great Periwinkle; 3. *V. rosea*. Madagascar Periwinkle.

The first has a perennial creeping root, with branched fibres: the Whole plant smooth and shining: the stems round, slender, leafy, erect when in flower, from nine inches to a foot in height, and much higher when supported by bushes, marked on each side with a groove faintly impressed; after flowering, prostrate, elongated, taking root at their joints. According to Woodward, the flowering-stem is upright in the spring, but in autumn the flowers are borne on the shoots of the year, which are trailing: the leaves opposite, on footstalks about one-fourth the length of the leaves, which are quite entire, evergreen, shining, somewhat like those of Privet, not having the fringed edge observable in the second sort: the flowers axillary, alternate, solitary, void of scent, on nearly upright peduncles, almost twice the length of the leaves, round, smooth, and shining, pale blue. It is a native of Germany.

It varies in the colour of the flowers; with pale blue, with purple and white, and with double flowers; and the foliage is sometimes variegated either with white or yellow stripes.

The second species is larger in all its parts than the preceding: the stems erect, finally rooting at the end: the leaves broad-ovate, three inches long, and two broad, of a thick consistence, finely fringed with short rigid hairs at the edge, on thick footstalks: the flowers solitary, alternate, on peduncles half the length of the leaves, of a purple-blueish colour. It is a native of France, Spain, &c flowering in May.

The third has an upright branching stem, three or four feet high, when young, succulent, jointed, purple; but as the plant advances the lower parts become woody: the branches have the joints very close, are covered with a smooth purple bark, and have oblong, ovate, entire leaves, two inches and a half long, and an inch and half broad, smooth and succulent, setting pretty close to the branches: the flowers axillary, solitary, on very short peduncles: tube long and slender: brim spreading open, flat, divided into five broad obtuse segments, which are reflexed at their points: the upper surface of the petal is of a bright crimson or peach colour, and their under side pale flesh-colour: there is a succession of flowers, from February to the end of October. It is a native of Madagascar, China, &c.

Culture.—These plants are all capable of being increased by layers, cuttings, and suckers.

In the first method, when the layers of the trailing branches are put down into the ground, they readily take root at almost any season. This is very much the case with the first sort, as almost every joint furnishes plants in the course of the summer ready to be put out in the autumn.

The cuttings may be made from the stalks and branches, and be planted in shady borders in the autumn or early spring, where they will become well rooted by the following autumn.

All the sorts succeed in this way.

In the third sort the cuttings should be made from the young shoots and planted in pots, plunging them in a hot-bed or the bark-bed, where they will become perfectly well rooted in the same year, and may be potted off separately, being placed in the stove, and shifted as may be necessary into large pots.

This sort may likewise be raised from seed, which should be sown in pots in the early spring filled with light rich earth, covering them well in, and plunging the pots in the hot-bed, or the bark-bed of the stove; and when the plants have a few inches growth, they should be pricked out into separate pots, replunging them in a hot-bed, giving proper shade and water, managing them afterwards as the cuttings.

The suckers may be taken off with root-fibres in the autumn or spring, and planted where they are to grow.

The two first sorts afford variety in the borders, clumps, &c. while the last has a fine effect in stove collections.

2. VIBURNUM TINSU.

LAURUSTINUS.

This genus contains plants of the deciduous and evergreen flowering kind.

It belongs to the class and order *Pentandria Trigynia*, and ranks in the natural order of *Dumosæ*.

The characters are: that the calyx is a five-parted perianth, superior, very small, permanent: the corolla one-petalled, bell-shaped, five-cleft: segments blunt, reflexed: the stamina have five awl-shaped filaments, length of the corolla: anthers roundish: the pistillum is an inferior germ, roundish: style none, but in its stead a turbinate gland: stigmas three: the pericarpium is a roundish berry, one-celled; the seeds bony, roundish.

The species cultivated are: 1. *V. Lantana*, Wayfaring Tree; 2. *V Opulus*, Water Elder; 3. *V. Lentago*, Pear-leaved Viburnum; 4. *V. Cassinoides*, Thick-leaved Viburnum; 5. *V. nitidum*, Shining-leaved Viburnum; 6. *V. lævigatum*, Cassioberry Bush; 7. *V. nudum*, Oval-leaved Viburnum; 8. *V. prunifolium*, Plum-leaved Viburnum; 9. *V. dentatum*, Tooth-leaved Viburnum; 10. *V. Tinus*, Laurustinus or Laurustine.

The first is a thickly-branched shrub or small tree, having round, pliant, mealy twigs, with the same kind of tufted stellated pubescence as is found on the flower-stalks, backs, and even upper surfaces of the leaves: the leaves opposite, somewhat elliptical, cordate, obtuse, serrate, strongly veined, turning dark red before they fall in autumn: stipules none: the flowers whitish, in large terminating, solitary, many-flowered cymes. It is a native of most parts of Europe, flowering here in May. It is sometimes known by the name of Pliant Mealy Tree; and according to Withering, the bark of the root is used to make birdlime.

There is a variety in North America with larger leaves, of a bright green; and with variegated leaves in nurseries.

The second species is a small bushy tree, smooth in all its parts, and very much branched: branches opposite, round: the leaves subcordate, with three great unequally serrate lobes, veined, paler beneath; their petioles bearing several cup-like glands towards the top, and a pair or two of erect linear appendages, scarcely to be called stipules, near the base: the cymes terminating, solitary, composed of many white flowers, radiant; the inner perfect, small, resembling those of Elder, those in the margin abortive, consisting merely of a large irregular flat petal without any organs of fructification: the stigmas nearly sessile, close together: the berries drooping, globular, crowned with five very small scales of the calyx, red, very succulent. It is a native of Europe, flowering early in June; the bright red berries ripen about September, and towards the middle of October the leaves assume a beautiful pink colour.

There is an American variety, which is a shrub, that has the twigs of a shining red colour, and which rises eight or ten feet high, with many side branches, covered with a smooth purple bark: the leaves cordate-ovate, ending in acute points, deeply serrate, having many strong veins, and standing upon very long slender footstalks.

There is another beautiful variety common in plantations under the name of Guelder Rose, bearing large round bunches of abortive flowers only, which rises to the height of eighteen or twenty feet if permitted to stand: the stem becomes large; the branches grow irregular, and are covered with a gray bark: the leaves are divided into three or four lobes, somewhat like those of the Maple; they are about three inches long, and two and a half broad, jagged on their edges, and of a light green colour: the flowers come out in a large corymb, are very white, and, being all neuters, are barren; from their extreme whiteness, and swelling out into a globular form, some country people have given this shrub the name of *Snow-ball Tree.* It is also sometimes called *Elder Rose* and *Rose Elder.*

The third has the branches bent or hanging down: the petioles waving on the edge: the leaves thick, like those of the tenth sort, smooth, serrulate with very small teeth: the germ terminating, awl-shaped, ventricose at the base. It is a native of North America, flowering here in July.

The fourth species has the lowest leaves obovate; the next ovate; the upper ones lanceolate. It is a native of North America. It flowers in June.

The fifth is a native of North America. It flowers in May and June.

The sixth species has the leaves petioled, broad-lanceolate, sharpish, without any raised veins: the petioles decurrent along the back, whence the twigs are ancipital: the corymb short: the stem twelve or fourteen feet high, sending out branches from the bottom to the top: the leaves about an inch long, and more than half an inch broad, of a light green colour, opposite, on short footstalks: the peduncles axillary, very short, supporting small umbels of white flowers, which appear in July. It is a native of South Carolina.

The seventh has a strong stem, covered with a brown smooth bark, and rising to the height of ten or twelve feet, sending out woody branches on every side the whole length, which have a smooth purplish bark: the leaves opposite, five inches long and two and a half broad, smooth and of a lucid green above, veined and of a light green beneath, entire at the edges, (indistinctly notched,) and rounded at both ends; of the same thickness with those of the Broad-leaved Laurustinus: the flowers are produced in large umbels (cymes) at the end of the branches, are in shape and colour like those of the common Laurustinus, but smaller; and the stamens are much larger than the corolla: they appear in July, and are succeeded by roundish berries, which, when ripe, are black. It is a native of America, flowering in May and June.

There are varieties with deciduous and evergreen leaves.

The eighth species rises with a woody stalk ten or twelve feet high, covered with a brown bark, and branching its whole length: the branches, when young, are covered with a smooth purple bark:

the leaves two inches long, and an inch and quarter broad, slightly serrate, and on short slender footstalks, opposite or without order: the flowers in small umbels (cymes) lateral and terminating; these are white, and smaller than in the first sort, appearing in June, and are sometimes succeeded by berries. It grows naturally in most parts of North America, where it is commonly called *Black Haw*.

The ninth has the stalks soft and pithy, branching out greatly from the bottom upward, and covered with a gray bark: the leaves three inches long, and nearly as broad, strongly veined, of a light green colour, placed opposite upon pretty long footstalks: the flowers in terminating corymbs, white, and almost as long as those of the first sort, appearing in June. It is a native of North America.

There are varieties with the leaves smooth on both sides, and with the leaves downy underneath and drawn out to a point.

In the tenth species the leaves are seldom more than two inches and a half long, and an inch and quarter broad; they are rounded at their base, but end in acute points, are veined and hairy on their under side, and not of so lucid a green colour as the following sort on their upper.

There are several varieties; as the smaller hairy leaved, in which the umbels (cymes) of flowers are smaller, and appear in autumn, continuing all the winter. The plants are much hardier.

The shining-leaved, in which the stalks rise higher, and the branches are much stronger: the bark is smoother, and turns of a purplish colour: the leaves are larger, of a thicker consistence, and of a lucid green colour: the umbels (cymes) are much larger, and so are the flowers; these seldom appear till the spring, and when the winters are sharp, the flowers are killed, and never open unless they are sheltered.

There is a sub-variety of this with variegated leaves; with gold and silver-striped; in which the branches are warted, the younger ones four-cornered: the leaves opposite, ovate, on short petioles, rigid, shining, perennial; the younger ones hirsute, with short ferruginous villose hairs: flowers in crowded cymes, with little bractes between them: the corolla white; and the berries, when ripe, blue.

The common, with narrower leaves, hairy only on the edge and veins underneath: the fruit smaller.

And the upright Laurustinus.

Culture.—These plants may some of them be increased by seeds, most of them by layers, many by cuttings, and a few by suckers.

The seeds in the deciduous kinds should be sown in the autumn or spring in beds of light fine mould, being well covered in. The plants appear in the first or second year, and when they are of a twelvemonth's growth they should be planted out in nursery-rows, to be continued till of proper growth to plant out in the shrubberies or other parts of pleasure-grounds, as from two to five feet.

In the Laurustinus kinds, the seeds after being mixed with mould in the autumn soon after they become ripe, and exposed to the air and rain in the winter, should in the spring be sown on a gentle hot-bed, or in pots plunged into it; the plants being continued in the bed till the autumn, when they should be removed and managed as in the layer method. The plants raised in this way are said to be hardier than those raised from layers.

The first sort is tedious in being raised from seeds.

In the layer, which is the most expeditious mode of raising most of these plants, the young lower branches should be laid down in the autumn or spring, being pegged down in the usual manner in the earth, when they mostly become well rooted in a twelvemonth, and may then be taken off and planted out where they are to remain, or in the nursery; and sometimes, in some of the kinds, a few are put in pots.

The best season for removing the tenth sort is in the early autumn, that they may be well rooted before the winter.

The first sort succeeds best by layers put down in the autumn. And the striped variety may be increased by budding it upon the plain sort.

The cuttings may be made in the autumn from the strong young shoots, being planted in a moist border in rows, when in the following summer many of them will be well rooted, and form little plants. Most of the deciduous sorts may be raised in this way.

The suckers should be taken up in the autumn or spring with root-fibres, and be planted out in nursery-rows to have a proper growth. The Guelder Rose may be readily increased in this way, and sometimes the Laurustinus.

The fourth sort is rather tender in winter while in its young growth, as well as the sixth, and should have protection in that season. A plant or two should be constantly laid in pots under shelter. This last is easily increased by layers.

These plants afford much variety and effect in shrubbery and other parts of pleasure-ground, when planted out in a mixed order. The evergreen sort are often used to cover disagreeable objects. The flowering evergreens are likewise often set out in pots.

PLATE LX.

1. WACHENDORFIA PANICULATA.

PANICLED WACHENDORFIA.

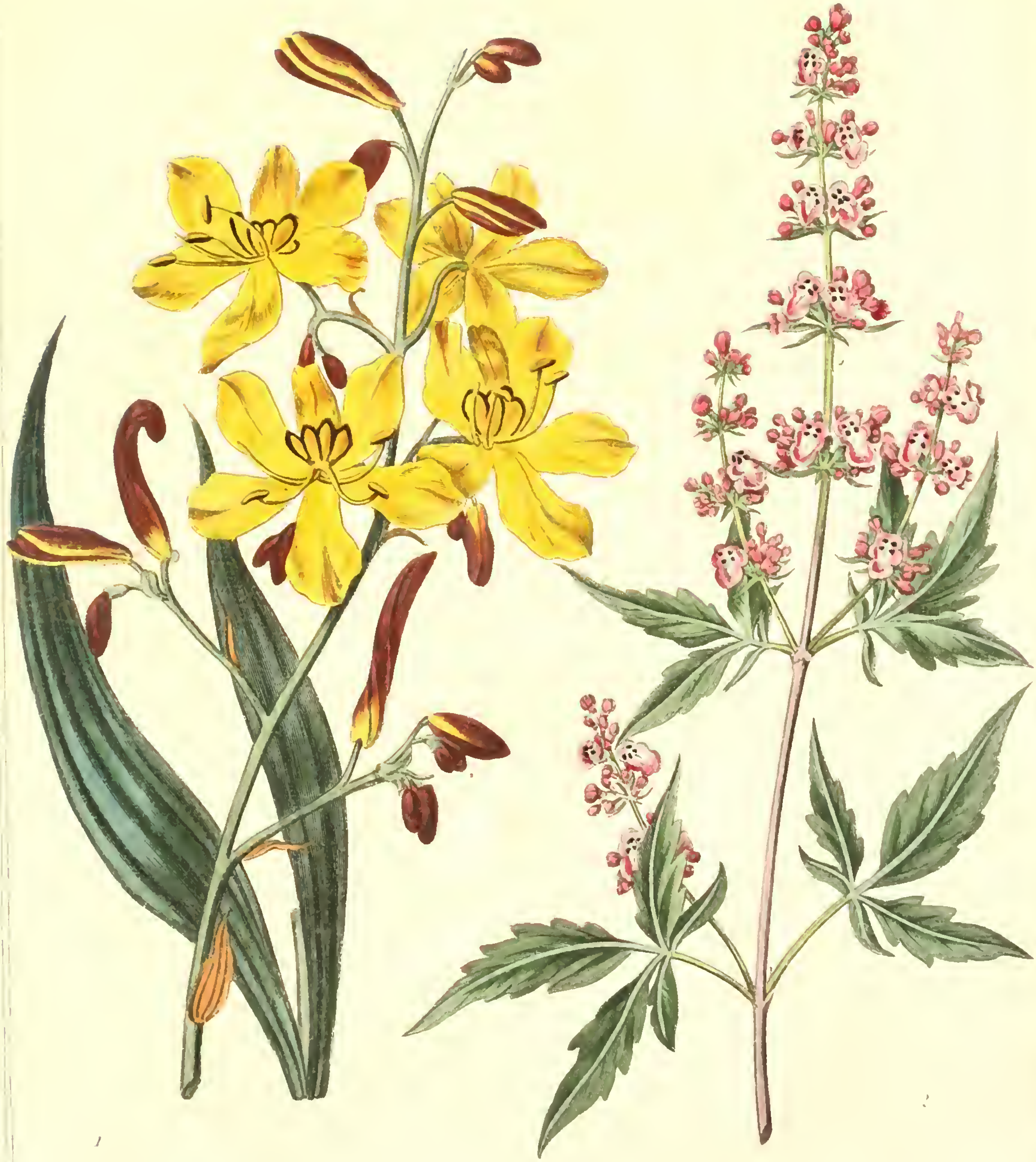
This genus furnishes plants of the exotic flowering perennial kind, for the green-house.

It belongs to the class and order *Triandria Monogynia*, and ranks in the natural order of *Ensatæ*.

The characters are: that the calyx is a two-valved spathe: the corolla six-petalled, unequal: petals oblong, the three upper ones more erect, three lower spreading: nectary of two bristles at the inner sides of the upper petal: the stamina has three filiform filaments, declined, shorter than the corolla: anthers incumbent: the pistillum is a superior germ, roundish, three-cornered: style filiform, declined: stigma simple: the pericarpium is a subovate capsule, three-sided, obtuse, three-celled, three-valved: seeds solitary, rough-haired.

The species cultivated are: 1. *W. thyrsiflora*, Simple-stalked Wachendorfia; 2. *W. paniculata*, Panicled Wachendorfia; 3. *W. hirsuta*, Hairy Wachendorfia.

The first has a thick tuberous root, reed-like, of a deep-red colour, sending out many perpendicular fibres of the same colour, and spreading into several offsets: the leaves, which rise immediately from the root, are large, with five plaited folds; the biggest are two feet long, and three inches broad, of a deep green colour: the flower-stalk rises from the centre of the heads between the leaves to the height of three or four feet, with leaves of the same form with those below, but narrower, and ranged alternately, embracing the stalk half round with their base: the flowers when young are enclosed



Painted by Sydᵈ Edwards London Pub. [illegible]th of May 180[illegible] by G Kearsley Fleet Street Engraved by F Sansom

1 Wachendorfia Paniculata
Panicled Wachendorfia

2 Vitex Negundo
Five leaved Chaste Tree

in sheaths, which, after some time, open and make way for the flowers to come out; then they wither and dry, but remain upon the stalk like those of the yellow Asphodel: they form a loose spike, and there are several upon one common peduncle, which open one after the other: the upper flowers stand almost upright, but the lower nod; they are hairy and of a saffron colour on the outside, but smooth and yellow within. It is a native of the Cape,

The second species, when in flower, is a foot high: the root perennial, a little creeping, furnished with oblong cylindrical and nearly perpendicular tubercles: the leaves radical, two-ranked, sessile, equitant, vertical, spreading, dilated on the inner side at the base, channelled, linear-lanceolate, pointed, entire, nerved, bright green, very like those of the first, but only one-third of the size, dying soon after the plant has done flowering, and not appearing again for some months: the stalk erect, cylindrical, bearing one or two small leaves, branched, many-flowered: general flower-stalks alternate, spreading, racemose, bearing from three to five flowers, cylindrical, downy: partial ones short, downy, all directed upwards, single-flowered. It is a native of the Cape.

The third seems chiefly to differ from the second in having hairy leaves, a more slender and taller stem, reddish-brown, and not green as in it; its branches more divaricate, the two upper lateral petals more contiguous, and its flowers when closed form a slenderer and more compact column: the incumbent anthers seem also to be shorter and rounder: the root-leaves oblong, lanceolate, three or four, about three or four inches high: the stem about three times their length: the segments traversed longitudinally on the outside by a brown hairy fillet; outer upper one wholly brown and pubescent outwards: the flowers scentless, opening in succession, closing towards evening: they expand in the month of July. It is a native of the Cape.

Culture.—These plants may be increased by offsets, taken from the heads of the roots, in the beginning of autumn, planting them in pots filled with soft loamy earth, mixed with a little sea sand, and when the season proves dry, placing them so as to have only the morning sun, until the offsets have taken new roots, when they must be placed in a sheltered situation, so as to have the full sun. On the approach of frosts, they should be placed in frames, and managed as plants of the tender kind.

The second sort is very impatient of cold, and seldom flowers in this climate.

They produce variety among other potted plants of the greenhouse kind.

2. VITEX NEGUNDO.

FIVE-LEAVED CHASTE TREE.

This genus contains plants of the hardy and under-shrubby kinds.

It belongs to the class and order *Didynamia Angiospermia*, and ranks in the natural order of *Personatæ*.

The characters are: that the calyx is a one-leafed perianth, tubular, cylindric, very short, five-toothed; the corolla one-petalled, ringent: tube cylindric, slender: border flat, two-lipped: upper lip trifid, with the middle segment wider: lower lip trifid, with the middle segment bigger: the stamina have four filaments, capillary, a little longer than the tube, two of which are shorter than the others: anthers versatile: the pistillum is a roundish germ: style filiform, length of the tube: stigmas two, awl-shaped, spreading: the pericarpium is a globular berry or drupe, four-celled: the seeds solitary, ovate.

The species cultivated are: 1. *V. Agnus castus*, Officinal Chaste Tree; 2. *V. incisa*, Cut-leaved Chaste Tree; 3. *V. trifolia*, Three-leaved Chaste Tree; 4. *V. Negundo*, Five-leaved Chaste Tree.

The first has a shrubby stalk eight or ten feet high, sending out their whole-length opposite branches, which are angular, pliable, and have a grayish bark: the leaves for the most part opposite upon pretty long footstalks; they are composed of five, six, or seven leaflets, spreading out like the fingers of a hand; the lower ones small, and the middle largest; they are smooth and entire; the largest are about three inches long, and half an inch broad in the middle, ending in blunt points, of a dark green on their upper side, but hoary on their under: the flowers are produced in spikes at the extremity of the branches, from seven to fifteen inches in length, composed of distant whorls; in some plants they are white, in others blue. They are generally late before they appear. They have an agreeable odour when they open fair, and make a good appearance in autumn, when the flowers of most other shrubs are gone. It is a native of Sicily.

There are varieties with narrow leaves, with broad leaves, with blue flowers, and with white flowers.

The second species has the stature of the preceding, but smaller in all its parts, with quinate acuminate pinnatifid leaves, pubescent underneath. It is a shrub seldom rising more than three feet high, sending out on every side spreading branches, which are slender and angular: the leaves opposite upon pretty long footstalks; some composed of three, others of five leaflets, which are deeply and regularly cut on their sides, like pinnatifid leaves, and end in acute points: the largest of these leaflets is about an inch and half long, and three quarters of an inch broad in the middle; they are of a dull green colour on their upper side, and gray on their under: the branches are terminated by spikes of flowers three or four inches long, disposed in whorls: in some plants they are white, in others blue, and some have bright red flowers: they are in beauty from the middle of July to the beginning of September. It is a native of China.

The third has the leaflets ovate, acute, quite entire, tomentose underneath, the two nearest to the petiole smaller: the stem is shrubby, branched, round, eight feet high, the thickness of a finger, procumbent, sometimes creeping: the leaves ternate, seldom quinate: leaflets waved, dusky, green above, cinereous-hoary beneath, soft: common petioles long, opposite: the flowers violet in dichotomous, terminating racemes: the fruit small, globular, hard, smooth, black, like pepper, four-seeded. It is a native of the East Indies.

The fourth species has the stem arboreous, twisted, the thickness of the human arm, with spreading branches: the leaflets lanceolate, for the most part quite entire, but sometimes serrate, flat-veined, of a dusky ash colour, on opposite petioles: the flowers purplish, in loose, terminating, erect racemes. It is a native of the East Indies.

Culture.—The first sort may be increased by cuttings and layers: the cuttings should be planted out in the early spring, in a fresh light soil, being often refreshed with water till they have taken root; afterwards the plants must be kept clear from weeds, and be protected during the following winter with mulch or mats; and about the middle of the following March, when the season is fine, be removed into the places where they are to grow, or into the nursery for two or three years to become strong; being pruned up to form regular stems.

The layers of the branches may be laid down in the spring, being careful not to split them, watering them in dry weather; when in about a year they may be taken off and planted out in the same manner as the cuttings.

The second sort may likewise be increased by cuttings, which should be planted in pots, plunged in a moderate hot-bed, covering them with glasses; when well rooted they may be taken up, and be planted in separate small pots filled with light earth, placing them in the shade till fresh rooted, afterwards placing them in a sheltered situation, with other green-house plants, until the autumn, when they must have protection from frost, and have very little water. They are late in putting out leaves in the spring, so as almost to appear dead.

The third sort is raised from cuttings, which should be planted in pots in the early spring, as April, plunging them in a moderate hot-bed, covering them with hand-glasses, being slightly watered; when they have taken root, they should have free air admitted in a gradual manner; then they may be taken up and planted out in separate pots filled with light earth, replunging them in the bed, and giving due shade. They should afterwards have plenty of free air when the weather is suitable, being treated as tender plants. It must be constantly kept in the stove, having free air in the summer season. It retains its leaves all the year. This may also be raised from layers.

The fourth sort may also be raised from cuttings, in the same manner as the second.

The first sorts may be introduced in the shrubberies, clumps, &c. and the latter kinds afford variety in stove and green-house collections.

THE END.

T. Bensley, Printer,
Bolt Court, Fleet Street, London.

New York Botanical Garden Library
QK98 .E32 gen
Edwards, Sydenham T/The new botanic gard
3 5185 00094 0427